Wood-Mizer® Sawmill

Safety, Setup, Operation & Maintenance Manual

LT70HD Remote DCS **rev. B8.03**

Safety is our #1 concern!

Form #1708

WARNING! Read and understand this manual before using this machine.

California

Proposition 65 Warning

WARNING: Breathing gas/diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Always start and operate the engine in a well-ventilated area.
If in an enclosed area, vent the exhaust to the outside.
Do not modify or tamper with the exhaust system.
Do not idle the engine except as necessary.

For more information go to **www.P65warnings.ca.gov**.

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection.

For more information go to **www.P65Warnings.ca.gov/wood**.

Active Patents assigned to Wood-Mizer, LLC

Wood-Mizer, LLC has received patents that protect our inventions which are a result of a dedication to research, innovation, development, and design. Learn more at: *woodmizer.com/patents*

Wood-Mizer, LLC
8180 West 10th Street
Indianapolis, Indiana 46214

Table of Contents Section-Page

Table of Contents Section-Page

Wood-Mizer® LLC
Limited Product Warranty

Wood-Mizer

Wood-Mizer LLC ("Warrantor"), an Indiana corporation with its principal place of business at 8180 West Tenth Street, Indianapolis, IN 46214-2400 USA, warrants to the purchaser ("Purchaser") that for the time periods specifically stated herein and subject to the terms, conditions and limitations stated herein, the equipment manufactured by the Warrantor will be free from defects in material and workmanship attributable to Warrantor so long as, during the warranty periods stated herein, the equipment is installed, operated and maintained in accordance with the instructions provided by Warrantor.

PRODUCT	MODEL CLASS	LENGTH OF WARRANTY		EFFECTIVE DATE
		USA & CANADA	NON USA & CANADA	
Portable Sawmills, Resaws, Edgers	LT, LX, HR, EG	Two years	One year	Date of purchase
Portable Sawmills with Chassis	LT28, LT35, LT40, LT50, LT70, LX450	Two years, excluding the chassis, which chassis shall have a five year warranty	One year	
Industrial Sawmills, Resaws, Edgers	WM, HR, EG, TVS, SVS	One year	One year	Date of purchase or date of installation / training (if applicable), whichever occurs first, not to exceed 6 months from date of purchase
TITAN Industrial	WB, TV, HR, EG, EA, MR	One year	One year	
Material Handling	TWC, IC, TD, LD, GC, CR, CB, CC	One year	One year	
Blade Maintenance Equipment	BMS, BMT, BMST	One year	One year	Date of purchase
Options and Accessories	Various	One year*	One year*	
Moulders, Extractors	MP, MD	Two years	One year	
Kilns	KS, KD	One year	One year	
Slab Flattener	MB	Two years	One year	
Pallet Equipment	PD, PC	One year	One year	
Log Splitters	FS	One year	One year	
Replacement Parts	Various	90 days	90 days	

* Warranty on Options will match the warranty on the primary equipment when purchased on same invoice.

Exclusions from 90 Day, Limited One Year and Two Year Warranty

Warrantor shall have **no** responsibility under this warranty for any wear components, including, but not limited to: belts, blade guides, blades, electric motor brushes, drum switches, filters, fuses, hoses, bearings (excluding cylindrical drive bearings), bushings, cable carriers, and spark plugs. All wear components are furnished **"as is"**, without any warranty from Warrantor. This limited warranty does not cover any defects caused by misuse, negligence, alterations, damage due to overload, abnormal conditions, excessive operation, accident, or lack of performance of normal maintenance services.

Several components which are used in the manufacture of the equipment but not manufactured by Warrantor such as cant hooks, power plants, laser sights, batteries, tires, and trailer axles have warranties provided by the original equipment manufacturer (written copies available upon request). Warrantor does not separately warrant such items. Components or equipment manufactured by third parties are not covered by this warranty. Warrantor, however, will provide reasonable assistance to the Purchaser to make claims against any warranties applicable to such component parts as provided by such original equipment manufacturers. Components or equipment manufactured by third parties are not covered by this Warranty.

Five Year Limited Chassis Warranty

The limited five year chassis warranty described above, DOES NOT extend to (a) any damage stemming from accident, improper towing, overload, abuse, misuse, abnormal conditions, negligence, excessive operation, or lack of maintenance, (b) rust caused by exposure to corrosive atmospheric conditions, or (c) the sawmill head, carriage, axle, brakes, or any hydraulic or electrical components attached to the chassis.

Warrantor's Obligations as To Defects

In the event that the equipment fails to perform due to defective materials or workmanship attributable to Warrantor under normal use and service within the established warranty period, Purchaser's sole and exclusive remedy and Warrantor's sole liability shall be to replace or repair, in Warrantor's sole and subjective discretion, any defective part at Warrantor's principal place of business without cost to the Purchaser if such defect exists. The determination of whether a product is defective shall be made by Warrantor in Warrantor's sole and subjective discretion. The Purchaser must notify Warrantor prior to shipping any defective part. Warrantor, at its sole discretion, may cover expenses incurred in shipping the defective part to Warrantor for evaluation; provided, however, that Warrantor will not be responsible for labor, travel time, mileage, removal, installation or incidental or consequential damages. However, any part in excess of 140 pounds must be returned by the Purchaser, to the Warrantor's nearest authorized facility at the Purchaser's expense, if return is requested by Warrantor. Warrantor shall have a reasonable time within which to replace or repair the defective part. If Warrantor determines that the product is not defective under the terms of this warranty in Warrantor's sole and subjective discretion, then Purchaser shall be responsible for any expenses incurred by Warrantor in returning the equipment to the Purchaser.

Limitations and Disclaimers of Other Warranties

EXCEPT FOR THE EXPRESS WARRANTY PROVISIONS STATED ABOVE, WARRANTOR DISCLAIMS ALL WARRANTIES, EXPRESS AND/OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT AND TITLE. No representation or other affirmation of fact by representatives of Warrantor, whether verbal or in writing, including photographs, brochures, samples, models, or other sales aids, shall constitute a warranty or other basis for any legal action against Warrantor. There are no other representations, promises, agreements, covenants, warranties, guarantees, stipulations or conditions, express or implied, by Warrantor except as expressly set forth herein. THE ORIGINAL PURCHASER AND ANY INTENDED USER OR BENEFICIARY OF THIS EQUIPMENT, SHALL NOT BE ENTITLED TO RECOVER ANY INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, CONSEQUENTIAL, SPECIAL, OR INCIDENTIAL DAMAGES OR LOSES, INCLUDING BUT NOT LIMITED TO, DAMAGES OF LOST PRODUCTION, LOST REVENUE, LOST PRODUCT, LOST PROFITS, LOST BUSINESS, LOSS OF USE, LOSS OF GOODWILL, OR BUSINESS INTERRUPTION, FROM WARRANTOR FOR ANY REASON WHATSOEVER INCLUDING WITHOUT LIMITATION WARRANTY OR DEFECT IN THE PRODUCT REGARDLESS OF THE SOLE, JOINT AND/OR CONCURRENT NEGLIGENCE, BREACH OF CONTRACT, BREACH OF WARRANTY, STRICT LIABILITY IN TORT OR STATUTORY CLAIMS OR OTHER LEGAL FAULT OR RESPONSIBILITY OF EITHER WARRANTOR OR PURCHASER OR ITS EMPLOYEES OR AGENTS. Warrantor does not warrant that its equipment meets or complies with the requirements of any particular safety code or governmental requirements.

Defective items replaced under the terms of this warranty become the property of Warrantor.

Design Changes

Warrantor reserves the right to change the design of its products from time to time without notice and without obligation to make corresponding changes in or to its products previously manufactured.

Rights of Purchasers

The validity and effect of this limited warranty as well as its interpretation, operation and effect, shall be determined exclusively by the principles of law and equity of the State of Indiana, USA. This limited warranty gives Purchaser specific legal rights. Purchaser may also have other rights, which may vary from state to state. Some states may not allow limitations as to the duration of implied warranties or to the exclusion or limitation of incidental or consequential damages, so some of the limitations and exclusions detailed set forth above may not apply. In the event that any one or more of the provisions of this warranty shall be or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this warranty shall not be affected thereby.

Interpretations

This Warranty constitutes the entire warranty agreement between Warrantor and Purchaser and supersedes any prior understandings or agreements pertaining to the same subject matter. This warranty cannot be amended except in writing which refers to this warranty which is signed by both Warrantor and Purchaser.

SECTION 1 INTRODUCTION

1.1 About This Manual

This manual replaces any previous information received on your Wood-Mizer® equipment.

The information and instructions in this manual do not amend or extend the limited warranties for the equipment given at the time of purchase.

1.2 Getting Service

For contact information, sales, service, parts, and additional manuals, sign into your account on *https://woodmizer.com*, or call inside the USA: 1-800-553-0182 or from outside the USA: 317-271-1542

1.3 Specifications

Equipment specification are included in the Online Manuals, which are found at *https://apps.woodmizer.com/Manuals/Manuals.aspx?parent=0.*

SECTION 2 GENERAL SAFETY

2.1 Safety Symbols

The following symbols and signal words call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.

DANGER! indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.

WARNING! suggests a potentially hazardous situation which, if not avoided, could result in serious injury or death.

CAUTION! refers to potentially hazardous situations which, if not avoided, may result in minor or moderate injury or damage to equipment.

NOTICE indicates vital information.

2.2 Safety Instructions

OWNER/OPERATOR'S RESPONSIBILITY

The procedures listed in this manual may not include all ANSI, OSHA, or locally required safety procedures. **It is the owner/operator's responsibility and not Wood-Mizer LLC to ensure all operators are properly trained and informed of all safety protocols.** Owner/Operators are responsible for following all safety procedures when operating and performing maintenance to the equipment.

OBSERVE ALL SAFETY INSTRUCTIONS

NOTICE Read the entire Operator's Manual before operating this equipment.

Note all safety warnings throughout this manual and those posted on the machine.

Be able to access this manual at all times while operating this equipment.

Read additional manufacturer's manuals and observe their applicable safety instructions.

Only persons who have read and understood the entire operator's manual should operate this equipment.

This equipment is not intended for use by or around children.

It is the owner/operator's responsibility to comply with all applicable federal, state, and local laws, rules, and regulations regarding the ownership, operation, and transporting your equipment.

Operators should become thoroughly familiar with and comply with these applicable laws for operating and transporting equipment.

WARNING! Clean sawdust from all guards, vents, control boxes, or any area where sawdust may gather **after every shift**. Failure to do so may result in fire, causing death or serious injury.

WEAR SAFETY CLOTHING

WARNING! Secure all loose clothing and jewelry before operating the equipment.

Always wear eye, ear, and foot protection when operating or servicing the equipment.

Wear hand protection while servicing the equipment blades.

Wear respiratory protection when sawing woods that require it. (It is up to the sawyer to know which woods require respiratory protection.)

HANDLE FUEL/LUBRICANTS SAFELY

DANGER! Due to the flammable nature of fuel and oil, never smoke, weld, grind or allow sparks near your engine or storage tanks, especially during times of fueling.

Do not allow fuel to spill on a hot engine during fueling operations or otherwise.

WARNING! Store gasoline away from sawdust and other flammable materials.

Do not use flammable fuels or liquids such as diesel fuel. Use ONLY water and Wood-Mizer Lube Additive with the water lube accessory.

EQUIPMENT SETUP

DANGER! Do not operate the equipment without **all** covers and guards in place.

WARNING! Set up the equipment on solid, level ground.

Keep all persons out of the area between the frame rails while loading and unloading the equipment.

CHECK EQUIPMENT BEFORE OPERATION

DANGER! Ensure all guards and covers are in place and secured before operating or towing the equipment.

Use the safety retainer pin and cable to fasten blade housing covers.

WARNING! Do not operate the equipment without the bed end retaining brackets properly installed; the saw head may to fall from the log bed.

KEEP PERSONS AWAY

DANGER! Keep all persons out of the path of moving equipment and logs when operating equipment or loading and turning logs.

Ensure the blade is disengaged and all persons are out of the path of the blade before starting the engine or motor.

KEEP HANDS AWAY

DANGER! Remove power before clearing debris or any other maintenance activity.

Disengage the blade and shut off the equipment engine before changing the blade.

WARNING! Avoid contact with any hot parts (motors).

Allow the system to cool sufficiently before beginning any service function, including debris removal.

Avoid contact with sharp edges of the cutting blades.

Stay a safe distance from rotating members (shafts, pulleys, fans, etc.) and ensure loose clothing or long hair does not engage rotating members

Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

Disengage the clutch/brake mechanism whenever the equipment is not cutting.

Do not adjust the engine drive belt with the engine running.

Keep hands, feet, etc., clear of exiting sawdust chute when operating equipment.

UP/DOWN SYSTEM SAFETY

WARNING! Secure the saw head with a chain with a minimum of 1900 lbs. working load capacity before adjusting the up/down chain.

Release pressure from the up/down assist prior to performing any service to the assembly. Parts are under tension and may fly apart.

Do not disassemble the pressurized cylinder. Parts are under pressure and may fly apart or damage the cylinder.

KEEP SAFETY LABELS IN GOOD CONDITION

NOTICE Ensure that all safety decals are clean and readable. Replace all damaged safety decals to prevent personal injury or damage to the equipment. Contact your local distributor, or call your Customer Service Representative to order more decals.

NOTICE If replacing a component that has a safety decal affixed to it, ensure the new component also has the safety decal affixed in the same place.

KEEP MILL AND AREA AROUND MILL CLEAN

WARNING! Maintain a clean and clear path for all necessary movement around the mill and material stacking areas.

Do not allow children in the area of the mill.

GAS OR DIESEL ENGINE OPERATION

DANGER! Operate your engine/machine only in well ventilated areas.

Do not operate an engine with a fuel or oil leak.

WARNING! Do not operate engine without proper and operational spark arrester/muffler.

DISPOSE OF WOOD BY-PRODUCTS PROPERLY

NOTICE Properly dispose of all wood by-products, including sawdust, chips, and other debris, including operation waste such as oil, filters, etc.

WORKING WITH BATTERIES

DANGER! Batteries expel explosive gases; keep sparks, flames, burning cigarettes, or other ignition sources away at all times.

WARNING! Always wear safety goggles and a face shield when working near batteries.

Wash hands after handling batteries to remove possible lead, acid, or other contaminants.

Charge the battery in a well ventilated area.

Do not attempt to charge a frozen battery.

CAUTION! Do not overcharge the battery. Overcharging may reduce the overall service life of the battery.

Ensure the battery is fully charged before transporting the equipment. If the battery is not fully charged, excessive vibration could reduce the overall service life of the battery.

NOTICE When working with batteries, use extreme care to avoid spilling or splashing electrolyte (dilute sulfuric acid) as it can destroy clothing and burn the skin.

EMERGENCY TREATMENT FOR CONTACT WITH BATTERY COMPONENTS (LEAD/SULFURIC ACID) *per SDS (Safety Data Sheet)*:

EYE CONTACT	**Sulfuric Acid and Lead**: Flush eyes immediately with large amounts of water for at least 15 minutes while lifting lids. Seek immediate medical attention.
SKIN CONTACT	**Sulfuric Acid**: Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes. **Lead:** Wash immediately with soap and water.
INGESTION	**Sulfuric Acid:** Administer large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.
INHALATION	**Sulfuric Acid**: Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician. **Lead:** Remove from exposure, gargle, wash nose and lips; consult physician.

2.3 Electrical Lockout Procedures

RULES FOR USING LOCKOUT PROCEDURE

The equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch or valve bearing a lock.

LOCKOUT PROCEDURES MUST BE USED DURING, BUT NOT LIMITED TO:

- Changing or adjusting blades
- Unjamming operations
- Cleaning
- Mechanical repair
- Electrical maintenance
- Retrieval of tools/parts from work area
- Activities where guards or electrical panel guard is open or removed

MAINTENANCE HAZARDS INCLUDE, BUT NOT LIMITED TO:

- Blade contact
- Pinch points
- Kickbacks
- Missiles (thrown blades/wood chips)
- Electrical

FAILURE TO LOCKOUT MAY RESULT IN, BUT NOT LIMITED TO:

- Cut
- Crush
- Blindness
- Puncture
- Electrocution
- Serious injury and death
- Amputation
- Burn
- Shock

TO CONTROL MAINTENANCE DANGERS:

- Lockout procedures must be followed (see **OSHA regulation 1910.147**).
- Never rely on machine stop control for maintenance safety (emergency stops, on/off buttons, interlocks).
- Do not reach into moving blades or feed systems. Allow all coasting parts to come to a complete stop.
- Electrical power supply and air supply must both be locked out.
- Where established lockout procedures cannot be used (electrical troubleshooting or mechanical dynamic troubleshooting), alternative effective protective techniques shall be employed which may require special skills and planning.
- Always follow safe operations practices in the workplace.

EQUIPMENT LOCKOUT PROCEDURE

Lockout procedures per OSHA regulation 1910.147, appendix A:

GENERAL

The following simple lockout procedure is provided to assist owner/operators in developing their procedures so they meet the requirements of **OSHA regulation 1910.147**. When the energy isolating devices are not lockable, tagout may be used, provided the owner/operator complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the owner/operator must provide full operator protection (see OSHA regulation 1910.147, paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented, and utilized.

PURPOSE

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before personnel perform any servicing or maintenance where the unexpected enervation or start-up of the machine or equipment or release of stored energy could cause injury.

COMPLIANCE WITH THIS PROGRAM

All personnel are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized personnel are required to perform the lockout in accordance with this procedure. All operators,

upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

SEQUENCE OF LOCKOUT

1. Notify all affected personnel that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.
2. The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.
3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
4. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).
5. Lock out the energy isolating device(s) with assigned individual lock(s).
6. Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

CAUTION! Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

8. The machine or equipment is now locked out.

RESTORING EQUIPMENT TO SERVICE

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all personnel have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout devices and re-energize the machine or equipment.

   NOTE: The removal of some forms of blocking may require re-enervation of the machine before safe removal.
5. Notify affected personnel that the servicing or maintenance is completed and the machine or equipment is ready for use.

PROCEDURE INVOLVING MORE THAN ONE PERSON

In the preceding steps, if more than one individual is required to lock out the equipment, **each shall place his own personal lock on the energy isolating devices.**

SECTION 3 SAWMILL SETUP

3.1 Stationary Sawmill Setup

Prepare a firm, level area where the sawmill can be anchored. There should be enough room around the sawmill for operators, sawdust removal, log loading and board removal. A cement pad with 5/8” diameter anchor bolts is recommended. The cement pad should be rated to support 6350 lbs./sq.ft. at each sawmill foot position.

See Form #847 for stationary sawmill foot anchor locations. *See Form #359* for stationary sawmill with bed extension foot anchor locations. *See Form #1084* for complete electric sawmill installation instructions.

LT70DCS Only: Replace the hitch with the provided front stationary DCS leg assembly as shown below. Reinstall the guide cable to the leg bracket.

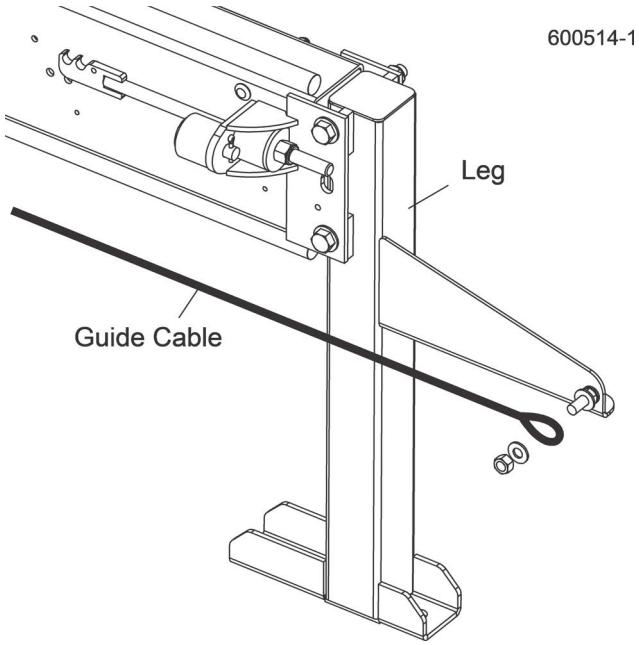


FIG. 3-1

NOTE: Make sure the unit is level before securing. It IS possible to twist the mill frame by jacking one foot higher than the others.

WARNING! Securely fasten the feet of a stationary sawmill to the floor before operating the sawmill. Failure to do so may result in serious injury or death.

Before moving the saw carriage, remove the operator control box and stand from the travel locations at the front of the sawmill frame.

1. Remove the retaining pin securing the control stand to the travel bracket. Lift the stand from the bracket turn so the legs are at the bottom and set on the ground.

Remove the retaining pin securing the control box to the travel bracket.

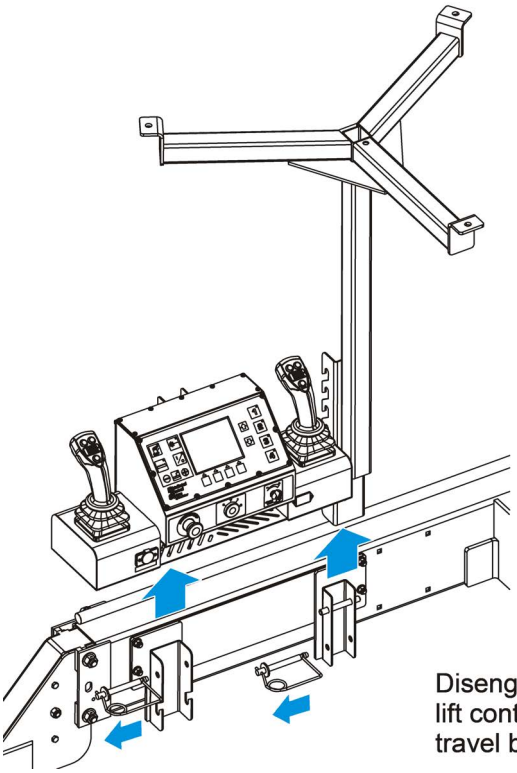


FIG. 3-2

2. Lift the control box from the bracket and set on the stand at the desired height. Secure the control box to the stand with the retaining pin in the uppermost bracket hole.

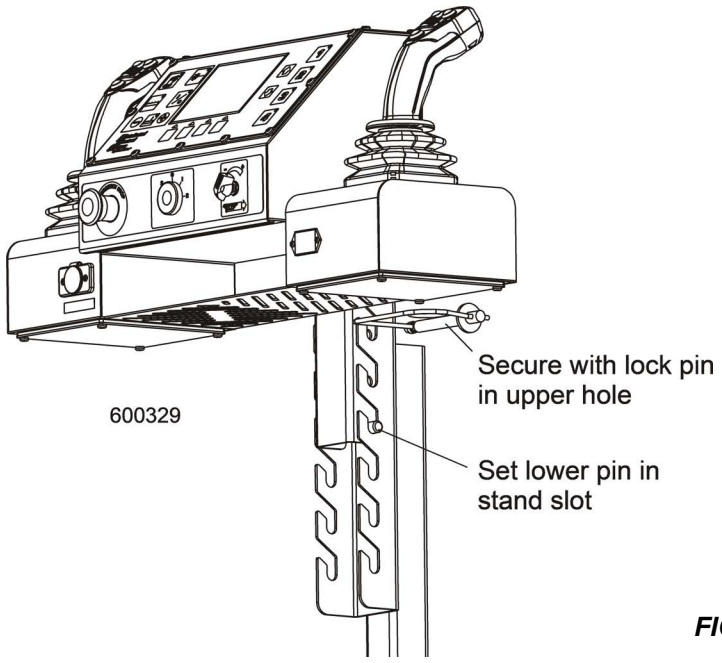


FIG. 3-3

3. Place the control/stand assembly in the desired location. Connect the cable from the hydraulic pump control to the port on the back of the operator control.

4. Unhook the carriage safety chain, located at the bottom of the vertical mast.

5. Start the engine to enable the battery-operated accessories (*See Section 3.6*). Push the right joystick forward to raise the cutting head from the carriage rest pin. Remove the locking pin and swing the rest pin down below bed level.

CAUTION! DC Models Only: Always make sure the engine is running before operating the sawmill controls. Operating the controls without the engine running will result in power drainage from the battery.

6. Pull the left joystick back to move the cutting head toward the front end of the mill.

SETUP THE BOARD RETURN TABLE FOR OPERATION

1. First, remove three retaining pins to detach the long table assembly from the sawmill.

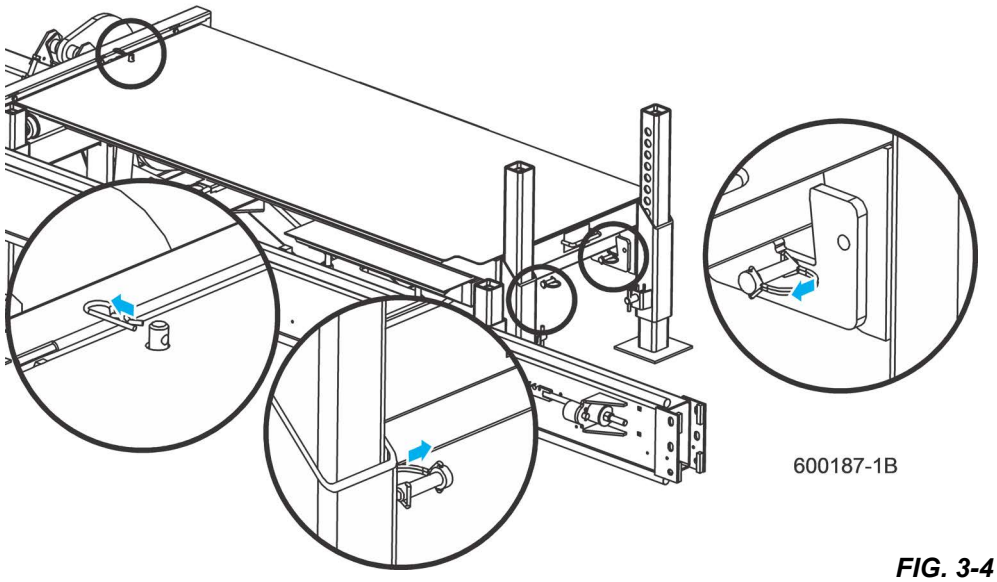


FIG. 3-4

2. Lift the long table assembly off the rest pin and slide toward the front of the mill. Rest the long table on the short bottom table so it is balanced. Replace the three retaining pins.

3. Remove the rest pin retaining pin and pivot the rest pin down below bed level. Replace the retaining pin.

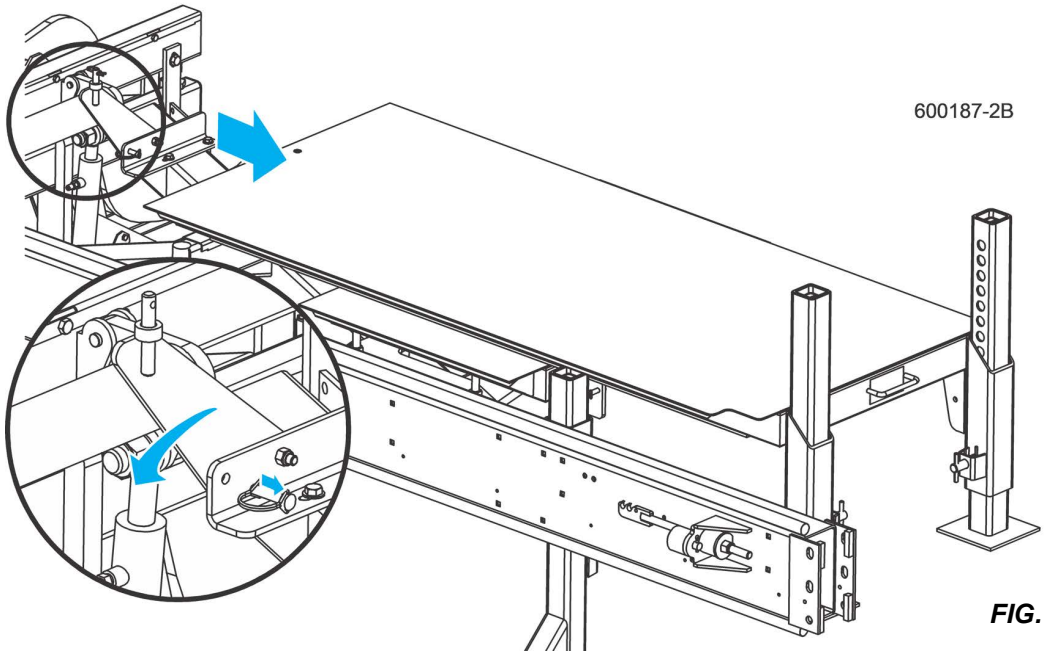


FIG. 3-5

4. Pull the outrigger pins and lower the legs.

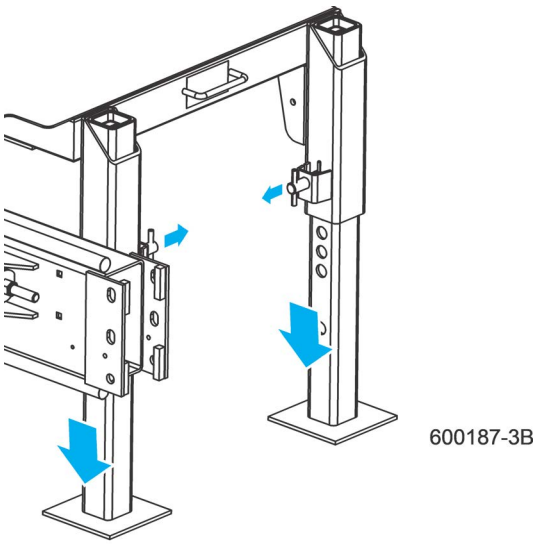


FIG. 3-6

5. Slide the long table until it rests in position, level with the short table assembly.
6. If necessary, adjust the outrigger legs up or down so the table is level.

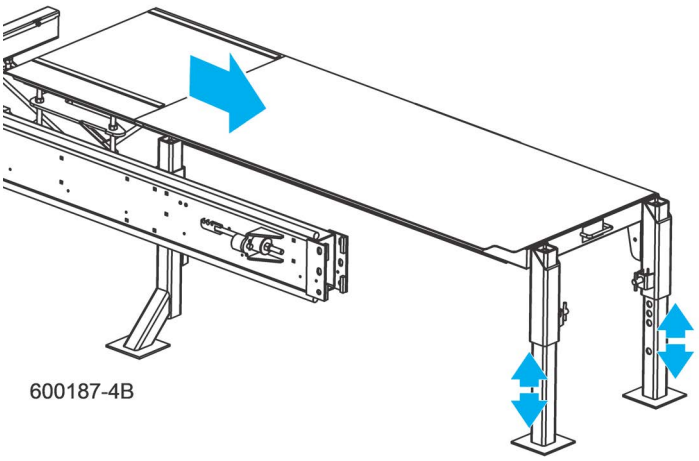
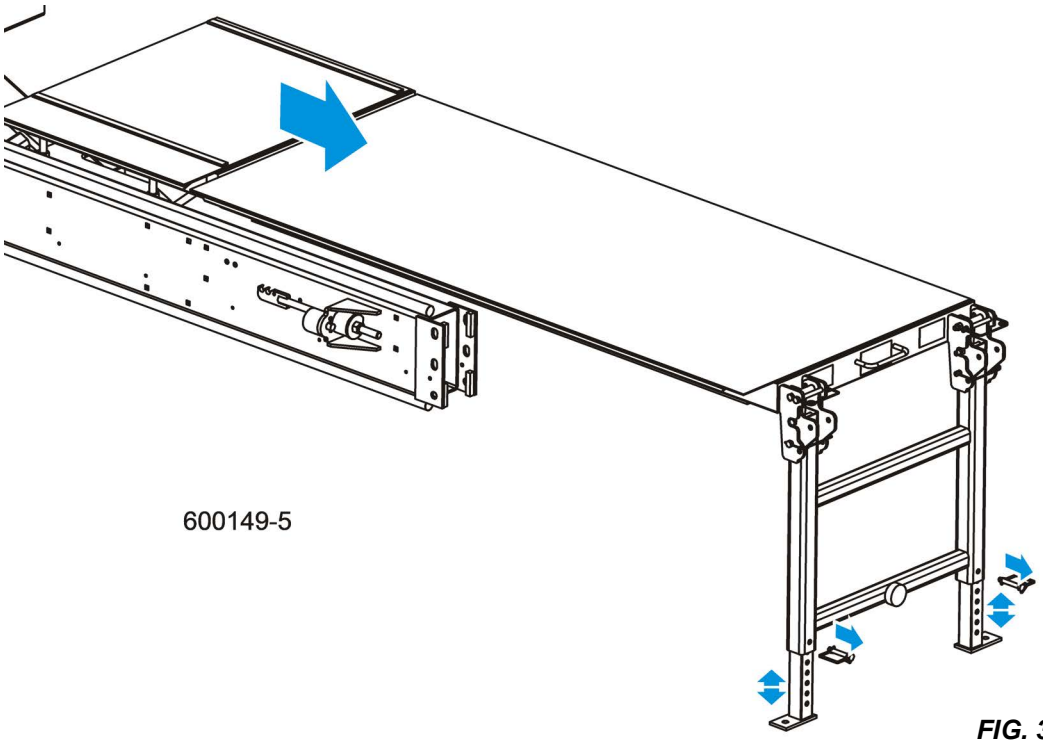


FIG. 3-7

7. Slide the long table until it rests in position, level with the short table assembly.

8. If necessary, remove the leg adjustment pins and adjust the legs up or down so the table is level. Replace the leg adjustment pins.



600149-5

FIG. 3-8

3.2 Portable Sawmill Setup

WARNING! Do not set up the mill on ground with more than a 10 degree incline. If setup on an incline is necessary, put blocks under one side of the mill or dig out areas for outrigger legs to keep mill level. Setting up the mill on an incline could cause it to tip over, resulting in serious personal injury.

WARNING! Chock the trailer wheels to prevent movement before unhitching it from the towing vehicle. Failure to do so may result in serious injury or death.

WARNING! Always make sure the trailer is supporting the sawmill frame when operating a sawmill with adjustable outriggers. Failure to do so may result in serious injury or death. The adjustable outriggers are intended to support the saw frame with assistance from the trailer.

WARNING! The adjustable outriggers supplied with portable sawmills are not intended for setup on concrete or other hard surfaces. Long-term use of the adjustable outriggers on hard surfaces may cause the outriggers to fail, causing the sawmill to drop. This could result in possible serious injury or death.

If setting the sawmill up on concrete or other hard surface, replace the adjustable outrgger legs with stationary legs.

1. Unhitch the mill from the vehicle.
2. Lower and set the front three outriggers. See the Fine Adjust Outfigger (FAO) manual for outrigger operation instructions.

WARNING! Put front outrigger down before moving cutting head from the rest position. Failure to do so may result in serious injury.

Before moving the saw carriage, remove the operator control box and stand from the travel locations at the front of the sawmill frame.

3. Remove the retaining pin securing the control stand to the travel bracket. Lift the stand from the bracket turn so the legs are at the bottom and set on the ground.

Remove the retaining pin securing the control box to the travel bracket.

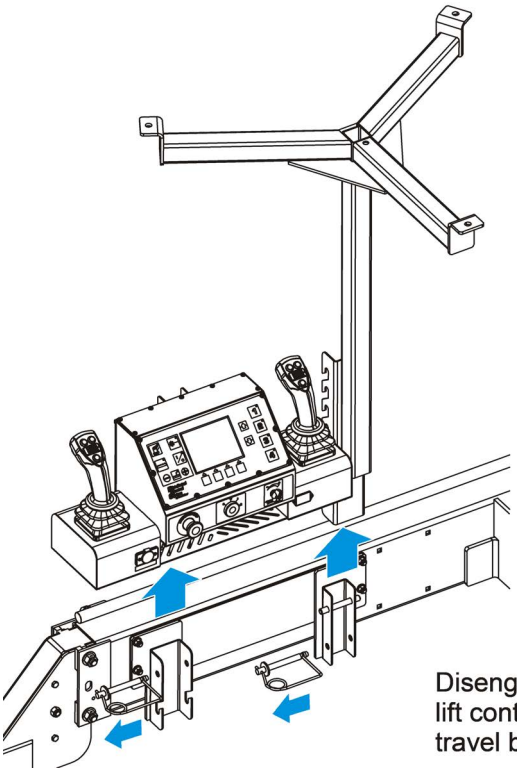


FIG. 3-9

4. Lift the control box from the bracket and set on the stand at the desired height. Secure the control box to the stand with the retaining pin in the uppermost bracket hole.

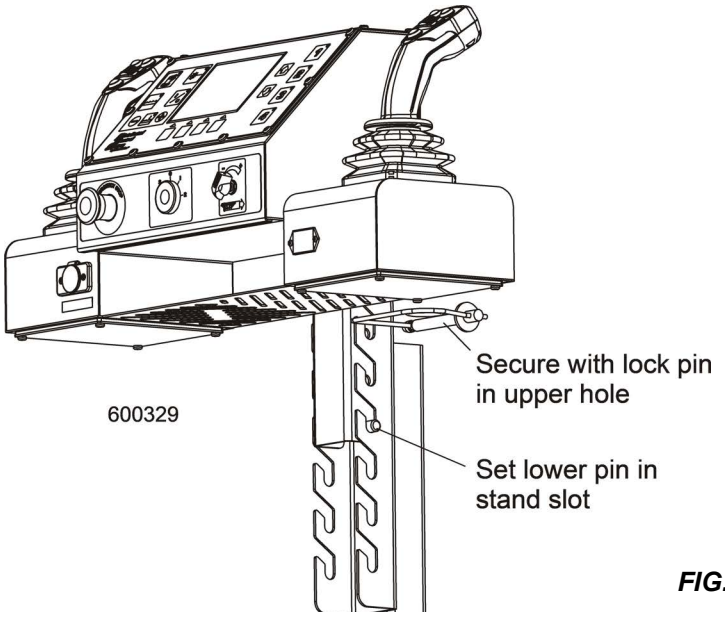


FIG. 3-10

5. Place the control/stand assembly in the desired location. Connect the cable from the hydraulic pump control to the port on the back of the operator control.

6. Unhook the carriage safety chain, located at the bottom of the vertical mast

7. Start the engine to enable the battery-operated accessories (*See Section 3.6*). Pull the right joystick back to raise the cutting head from the carriage rest pin. Remove the locking pin and swing the rest pin down below bed level.

CAUTION! DC Models Only: Always make sure the engine is running before operating the sawmill controls. Operating the controls without the engine running will result in power drainage from the battery.

8. Remove the fenders by lifting them out of the slots.

CAUTION! To prevent fender damage, remove fenders before operating sawmill or loading logs.

9. Pull the left joystick back to move the cutting head toward the front end of the mill.

10. Lower and set the remaining rear outriggers. Level the sawmill by adjusting the outriggers to raise or lower each end of the sawmill. Adjust all outriggers evenly to avoid twisting the mill frame by jacking one outrigger higher than the others.

SETUP THE BOARD RETURN TABLE FOR OPERATION

1. First, remove three retaining pins to detach the long table assembly from the sawmill.

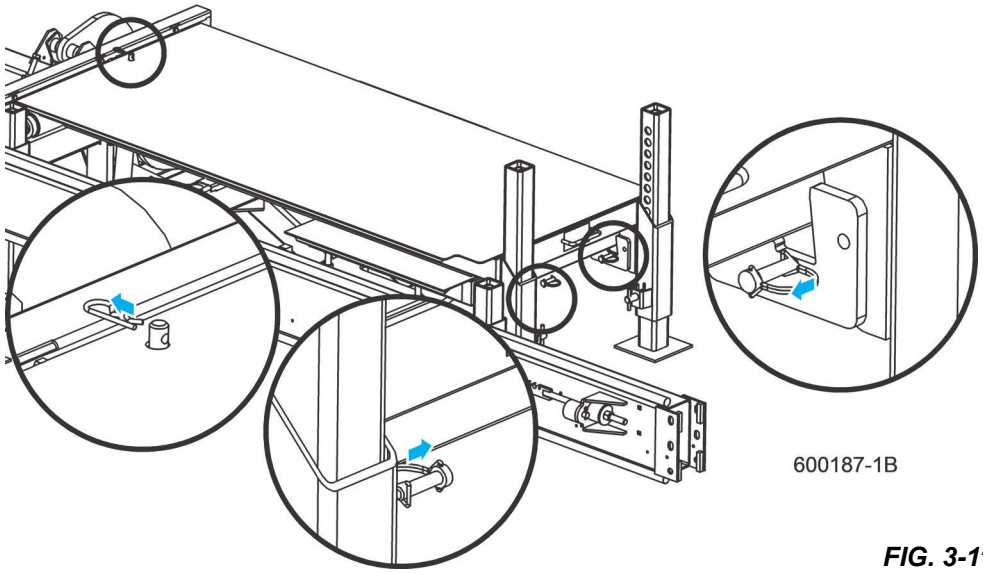


FIG. 3-11

2. Lift the long table assembly off the rest pin and slide toward the front of the mill. Rest the long table on the short bottom table so it is balanced. Replace the three retaining pins.

3. Remove the rest pin retaining pin and pivot the rest pin down below bed level. Replace the retaining pin.

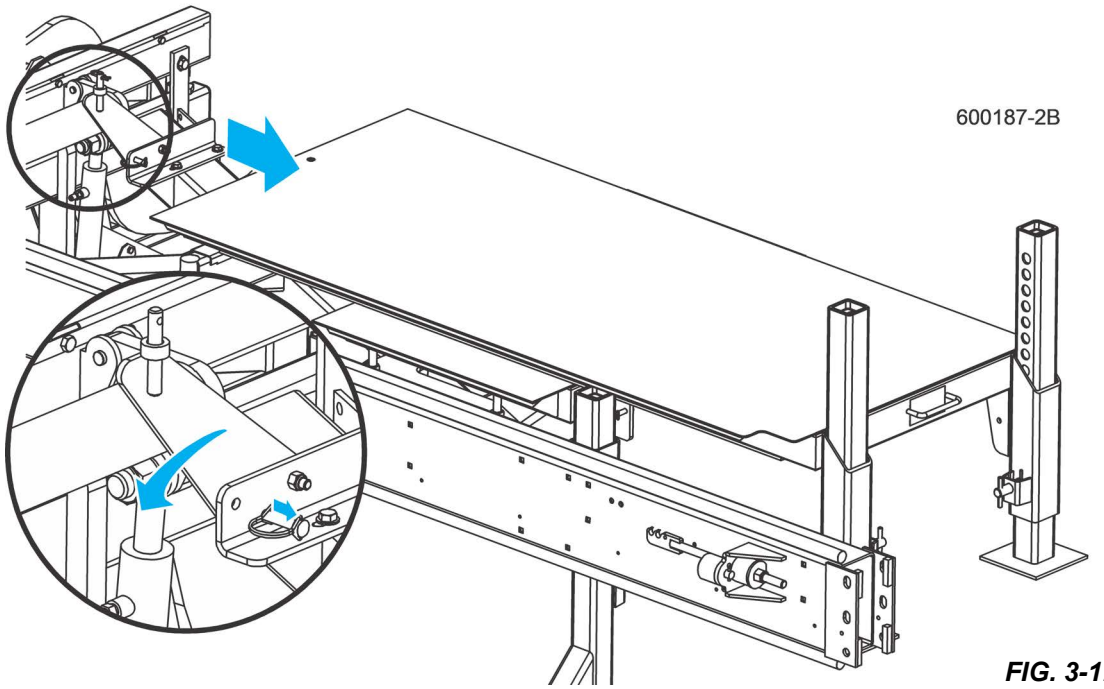


FIG. 3-12

4. Pull the outrigger pins and lower the legs.

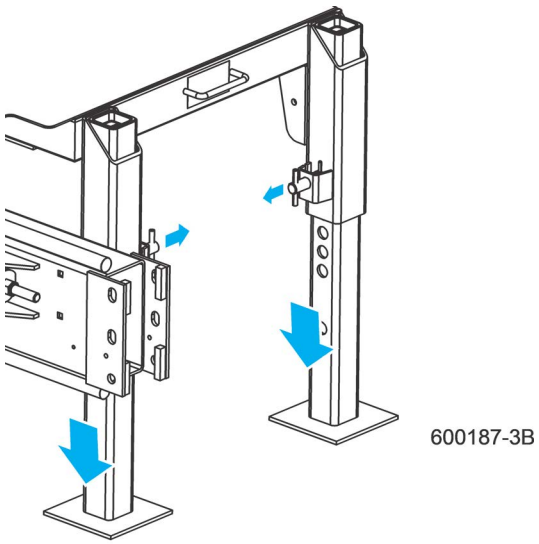


FIG. 3-13

5. Slide the long table until it rests in position, level with the short table assembly.

6. If necessary, adjust the outrigger legs up or down so the table is level.

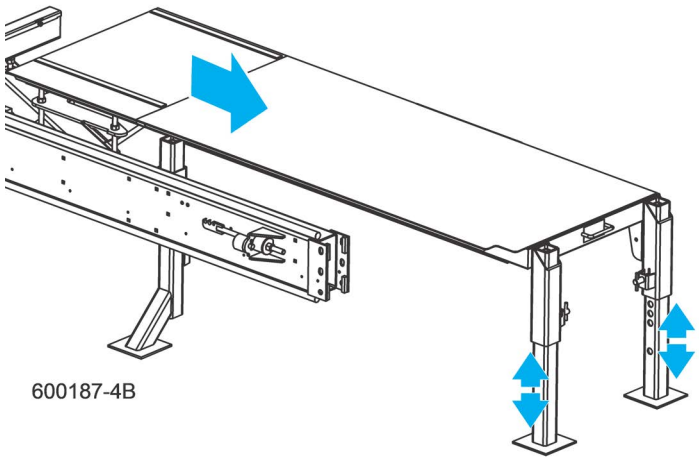


FIG. 3-14

3.3 Installing The Blade

DANGER! Always disengage the blade and shut off the sawmill engine before changing the blade.

WARNING! Always wear gloves and eye protection when handling bandsaw blades. Changing blades is safest when done by one person! Keep all other persons away from area when coiling, carrying or changing a blade.

1. Open the two blade housing covers that cover the blade wheels.
2. Release the blade tension handle to release the hydraulic pressure until the wheel is pulled in and the blade is lying loose in the blade housing.
3. Lift the blade out of the blade housing.

When installing a blade, make sure the teeth are pointing the correct direction. The teeth should be pointing toward the operator side (dust chute side) of the mill.

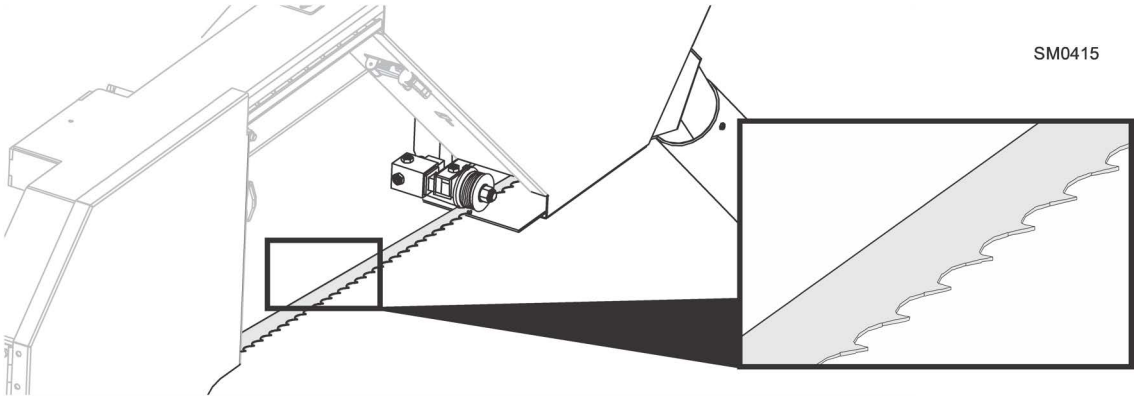


FIG. 3-15

4. Install the blade so it is lying around the wheels.

CAUTION! Be careful when placing the blade between the blade guide inserts. If the blade hits one of the inserts hard enough, it could damage the insert.

5. Position 1 1/4” wide blades on the wheels so the gullet is 1/8" (3.0 mm) out from the edge of the wheel.
6. Position 1 1/2” wide blades on the wheels so the gullet is 3/16” (4.5 mm) out from the edge of the wheel.
7. Close the blade housing covers.
8. Use the tension handle to tension the blade correctly.

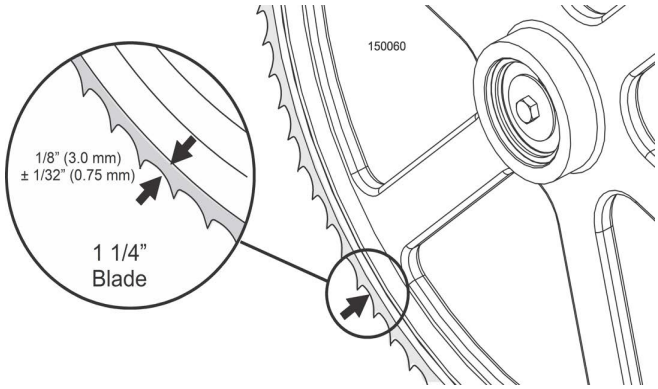


FIG. 3-16

3.4 Tensioning The Blade

Before tensioning the blade, check the air pressure gauge to see that the air tension system is properly charged. With the blade tension completely released and the air bag plate against the stop bolt, the gauge should read 85 psi for all blade types. To add air pressure, remove the air valve stem cover and attach an air pump to the air valve. Add air until the gauge indicates the proper air pressure. To release air, push in the valve stem. Replace the air valve stem cover when finished adjusting the air pressure.

To tension the blade, turn the release valve clockwise to close. Pump the lever until the air bag plate is approximately 1/8" (3.0mm) from the stop plate.

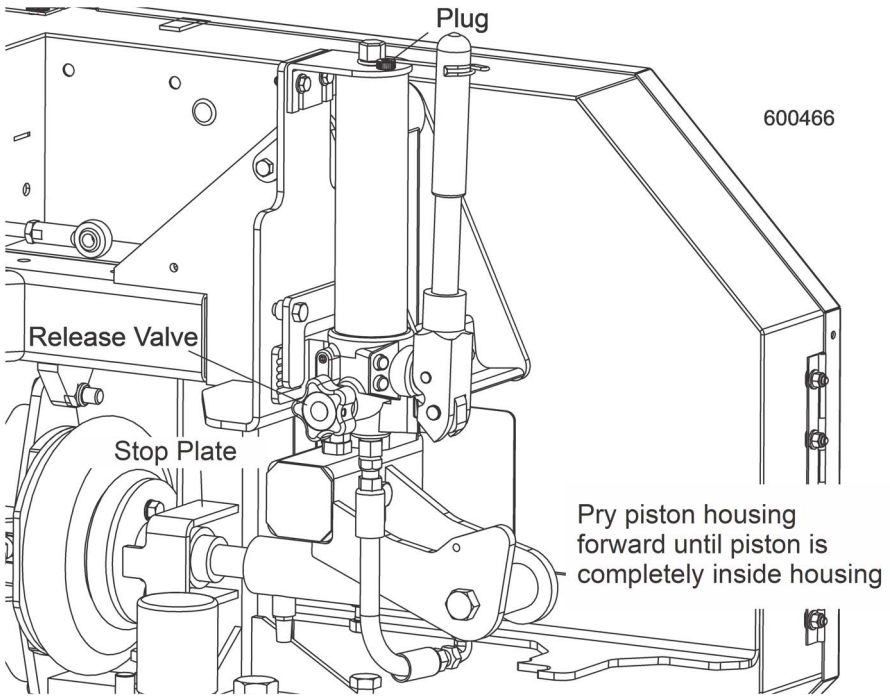


FIG. 3-16

To release blade tension, turn the release valve counterclockwise to open. Pry the assembly forward until the blade can be removed.

The tension gauge should be checked occasionally when adjusting the cant control or while cutting. Ambient temperature changes will cause tension to change. Adjust the tension handle as necessary to maintain the recommended tension level.

3.5 Tracking The Blade

1. Make sure the blade housing covers are secured and all persons are clear of the saw head.
2. Start the engine (or motor).
3. Engage the blade, rotating the blade until the blade positions itself on the wheels.

WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

4. Disengage the blade. Turn off the engine, remove the key and check the position of the blade on the blade wheels.

Position 1 1/4” blades so that the gullet is 1/8" (3.0 mm) out from the edge of the blade wheel (±1/16 [1.5 mm]).

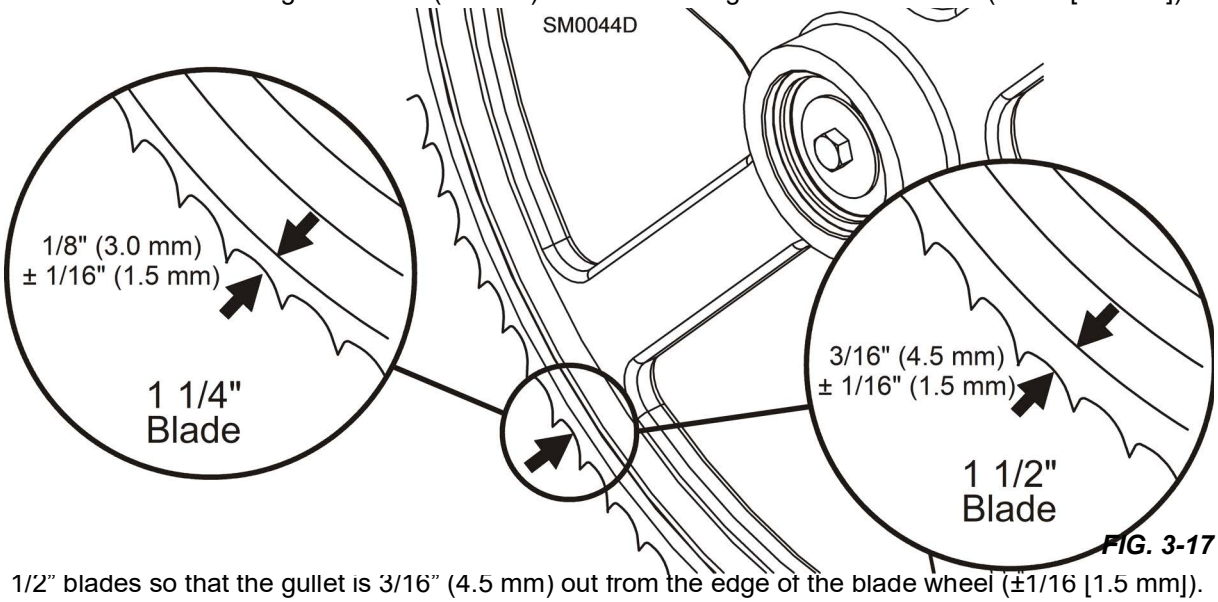


FIG. 3-17

Position 1 1/2” blades so that the gullet is 3/16” (4.5 mm) out from the edge of the blade wheel (±1/16 [1.5 mm]).

5. Use the cant adjustment bolt to adjust where the blade travels on the blade wheels.

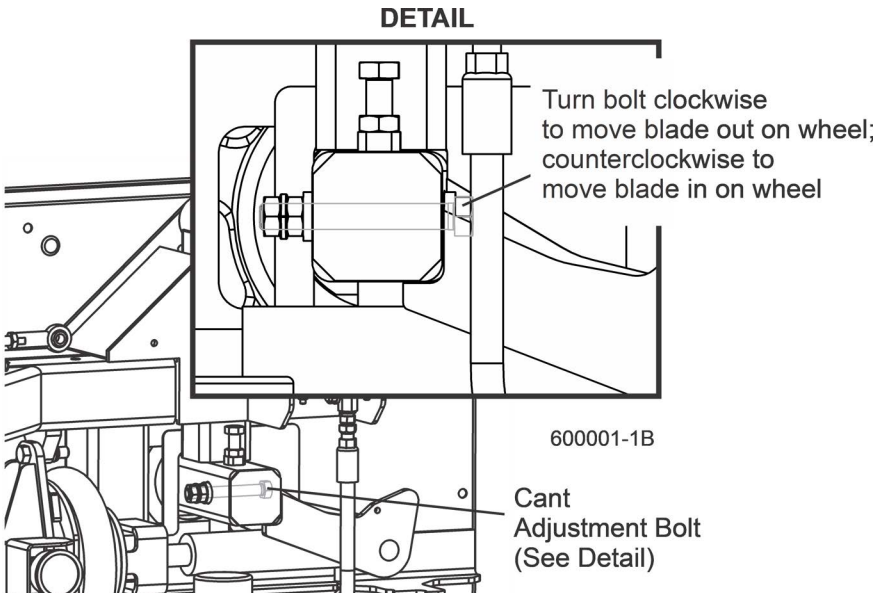


FIG. 3-18

To move the blade out on the blade wheel, turn the cant adjustment bolt clockwise. To move the blade in on the blade wheel, turn the bolt counterclockwise.

> **NOTE:** Slight adjustments of the side bolts on the outer blade wheel are usually all that is necessary to track the blade properly. *See Section 7.2* for complete blade wheel alignment instructions.

6. Close the blade housing covers, retension the blade and spin the blade again.

7. Repeat this procedure until the blade tracks on the blade wheels properly.

8. Adjust the blade tension if necessary to compensate for any changes that may have occurred while adjusting the cant control.

> **DANGER!** Ensure all guards, covers, blade housings, and pulley covers are in place and secured before operating or towing the sawmill.

> ***NOTICE*** After aligning the blade on the wheels, always double-check the blade guide spacing and location. (*See Section SECTION 7* for more information.)

3.6 Starting The Engine or Motor

See the appropriate manual supplied with your specific engine/motor configuration for starting and operating instructions.

DANGER! Make sure all guards and covers (including the blade housing and pulley covers) are in place and secured before operating or towing the sawmill.

Always be sure the blade is disengaged and all persons are out of the path of the blade before starting the engine or motor.

WARNING! Always wear eye, ear, respiration, and foot protection when operating the sawmill.

Be sure the power feed switch (if equipped) is in the neutral position before turning the key switch to the on (#1) or accessory(#3) position to prevent accidental carriage movement .

3.7 Board Return

WARNING! The automatic board return is intended to assist a second operator in removing boards quickly. Do not use the board return when operating the sawmill alone.

WARNING! Do not stand on the board return table.

The sawmill is equipped with a board return system. This system consists of arms on the saw head and a board return table to catch the board as it is removed from the log. Use of the board return not recommended with material shorter than 8 foot.

When the blade reaches the end of the log, the arms will drop down to catch the board and drag it back toward the operator as the saw head is returned.

WARNING! Keep all persons out of the path of returning boards.

Boards may not always return in the same path or location. If a board returns in a manner that does not allow the sawyer or off-bearer to maintain control, it may be necessary to stop the reverse motion of the saw head.

When the board return is to be used, a second person is required to remove the board as it is returned. DO NOT attempt to use the board return feature when sawing alone.

To bypass the board return feature, pin the board return arms in the storage position.

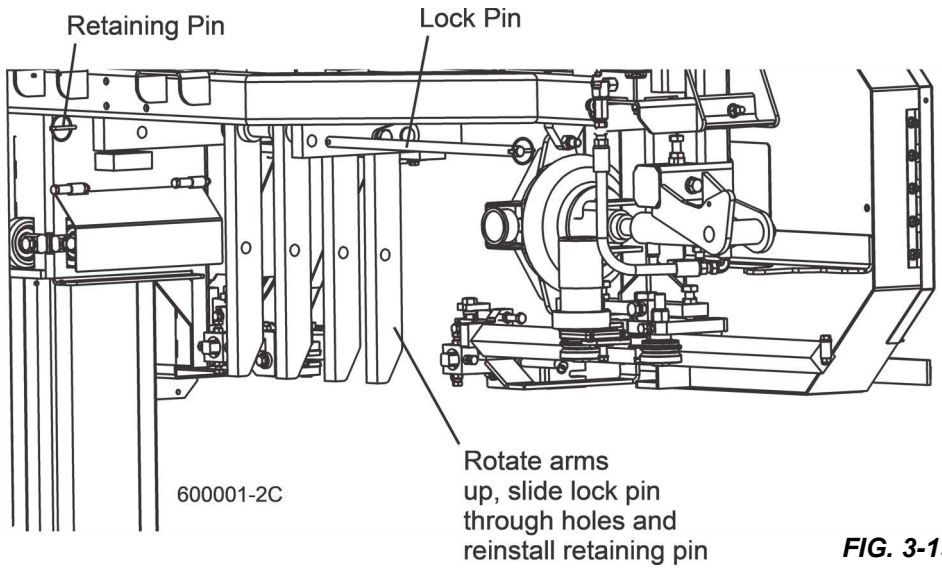


FIG. 3-19

3.8 Debarker Setup

Check and adjust debarker alignment as required.

DANGER! Before performing any service to this equipment, turn the key to the OFF (0) position and remove the key. Failure to do so will result in serious injury or death.

The debarker blade should be aligned to the sawmill blade to insure proper operation. The debarker blade should be parallel with and aligned vertically with the sawmill blade.

1. Turn the key to ON (2) and move the debarker all the way in. Turn the key to OFF (0) and remove the key. This will prevent the debarker from being turned on while performing alignment procedures.
2. Check the squareness of the debarker with the sawmill blade. Adjust the debarker mounts if necessary until the debarker is square with the sawmill blade.

Loosen the bottom debarker mounting bolt and loosen the jam nuts on the adjustment bolts. Turn the adjustment bolts as necessary until the debarker is square with the sawmill blade. Retighten the jam nuts and bottom debarker mounting bolt.

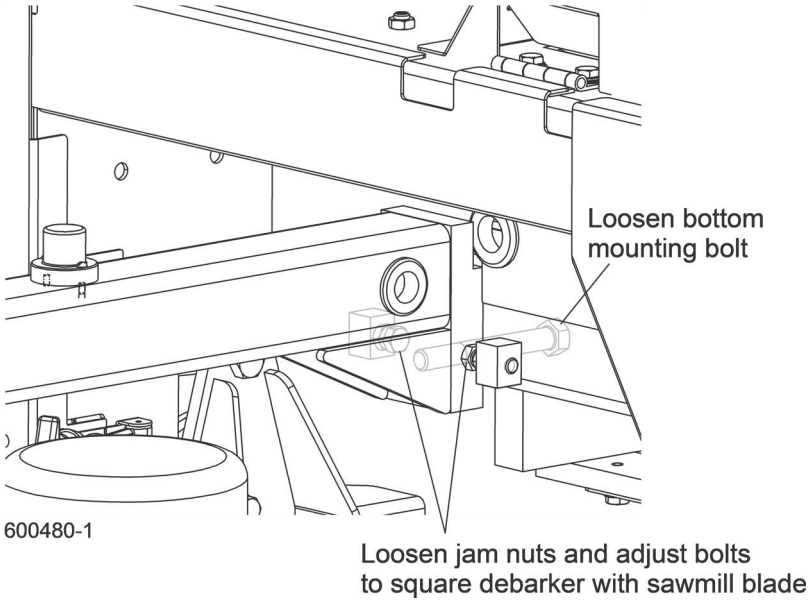


FIG. 3-20

3. Clip the blade guide alignment tool to the sawmill blade. Make sure the tool lies flat on the blade and does not contact a tooth that could cause it to angle.

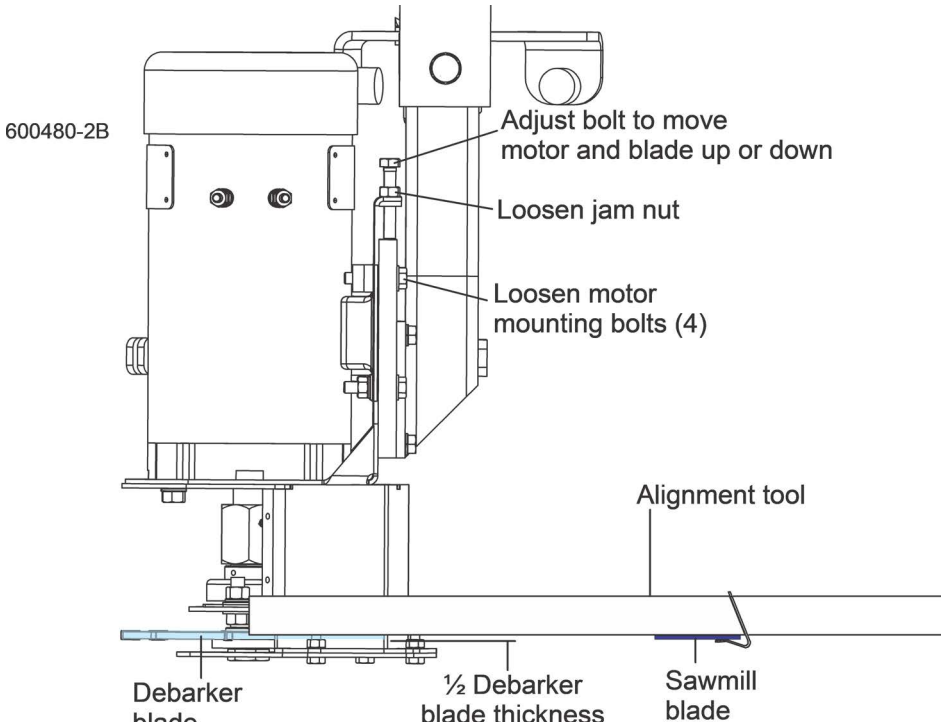


FIG. 3-21

4. Check the height of the debarker blade against the alignment tool. The bottom edge of the tool should align with the center of the debarker blade.

To adjust the blade up or down, loosen the four blade motor mount bolts. Loosen the jam nut on the adjustment bolt. Turn the adjustment bolt clockwise to push the motor and blade down. Turn the adjustment bolt counterclockwise and slide the motor up to raise the motor and blade. Retighten the adjustment bolt jam nut and four motor mount bolts.

5. Insert the key and use the debarker in/out switch to move the debarker all the way out. Turn the key to OFF (0) and remove the key.

6. Move the blade guide alignment tool on the sawmill blade and check the position of the debarker blade against the tool. If the debarker blade is not centered with the tool, readjust the debarker mounting bolts to adjust the debarker assembly parallel to the blade.

SECTION 4 SAWMILL OPERATION

4.1 Hydraulic Control Operation (DCS)

AC sawmill: The hydraulic controls are operational when the key switch is on except when the saw carriage is moving forward.

DC sawmill: The DCS hydraulic controls become operational when the contacts at the bottom of the carriage touch the power strip on the frame tube. The hydraulic controls will only work when the cutting head is close enough to the front end of the mill to touch the power strip. A second power strip is located at the rear of sawmill frame to allow operation of the hydraulic clamp, side supports and toe boards with the cutting head at the rear of the mill. Avoid high-current operations such as loading or turning logs unless the saw head is in contact with the front power strip.

Components of the DCS control are shown below.

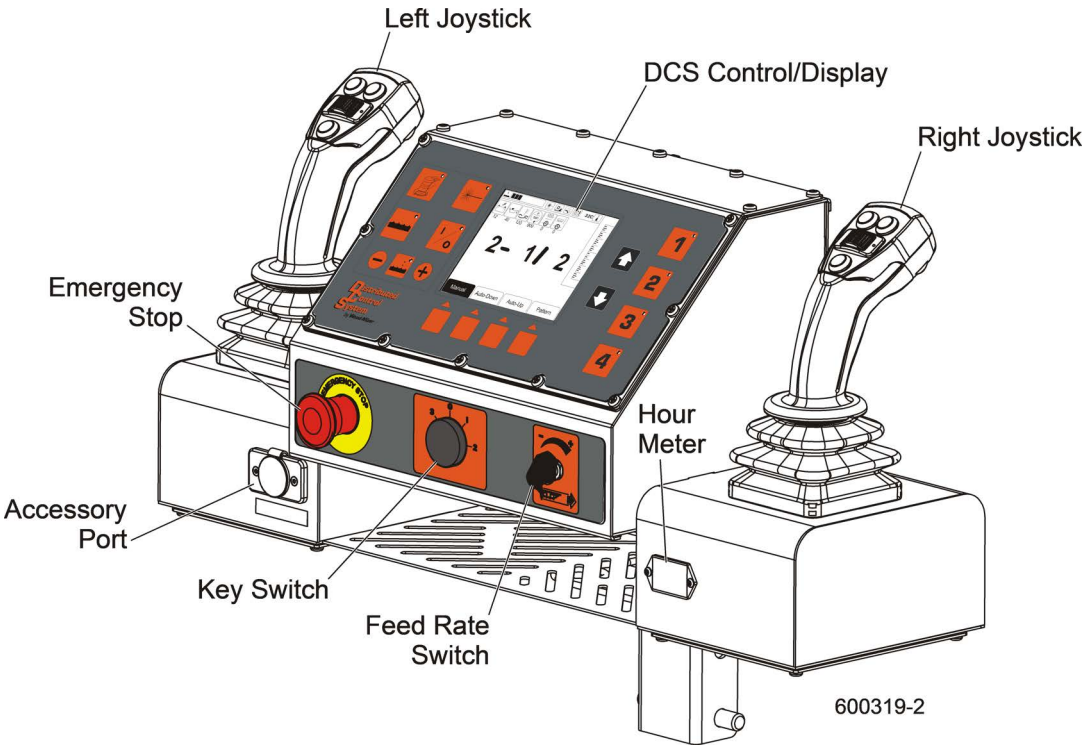


FIG. 4-1

Use the joystick controls to get the mill ready to load a log.

DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

CAUTION! Always make sure the engine is running before operating the hydraulic controls. Operating the controls without the engine running will result in power drainage from the battery. Holding the joysticks halfway up or down also will cause excessive drainage from the battery.

Press and hold the right joystick bottom button to place the DCS Control in Bed Mode #1.

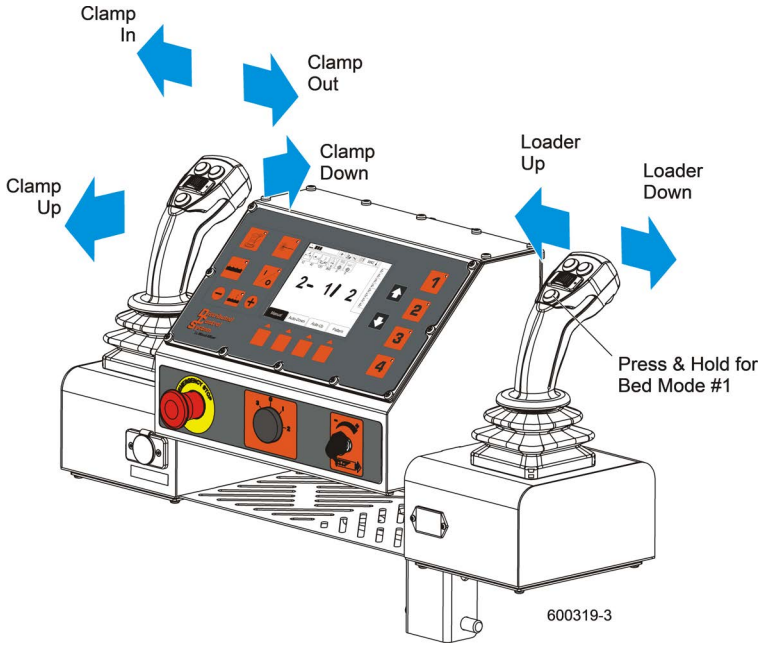


FIG. 4-2

1. Move the clamp out and down so it will not get in the way of logs being loaded onto the bed:

Move the left joystick to the right to move the clamp out toward the loading side of the sawmill.

Push the left joystick forward to lower the clamp below bed level.

2. Move the right joystick to the left to extend the legs of the log loader out as far as they will go.

3. The chain securing the log loading arm to the log turner arm will be tight. Raise the log turner lever to raise the turner arm until there is slack in the chain.

4. Unchain the loading arm from the turner arm.

Press and hold the left joystick bottom button to place the DCS Control in Bed Mode #2.

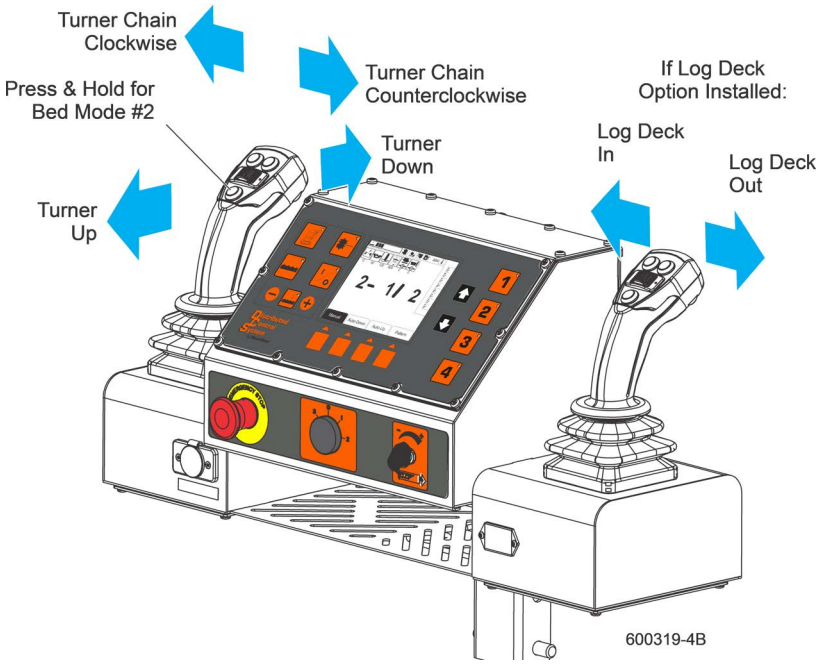


FIG. 4-3

5. Move the left joystick forward to completely lower the turner arm. Notice that after the turner arm is all the way down, the side support braces will begin to lower. Release the joystick after the turner arm is lowered, but before the side supports begin to lower. This stops the log being loaded from damaging the turner and/or falling off the side of the sawmill.
6. When raising the turner, the side supports rise first. After reaching a fully vertical position, the turner arm will engage and start to rise.
7. Manually lower the log loader so it rests on the ground.

CAUTION! Be careful when manually lowering the log loader. Do not drop the loader onto the ground or perform any action which might break the velocity fuse valves on the loader cylinders. These valves control hydraulic flow and are necessary to prevent the loading arm from collapsing during use.

8. Load logs onto the sawmill bed:

If using the optional log deck, remain in Bed Mode #2 and move the right joystick to the left to move logs onto the sawmill bed.

If using the standard log loading arm, place the DCS Control in Bed Mode #1. Move the right joystick to the right to lower the loading arm as far as it will go. Logs must be rolled onto the loading arm one at a time for loading onto the bed of the mill.

9. The front and rear toe boards should be below bed level. Once a tapered log has been loaded, the front or rear end of the log may be lifted to parallel the heart of the log to the path of the blade.

Press and hold the right and left joystick bottom buttons simultaneously to place the DCS Control in Bed Mode #3.

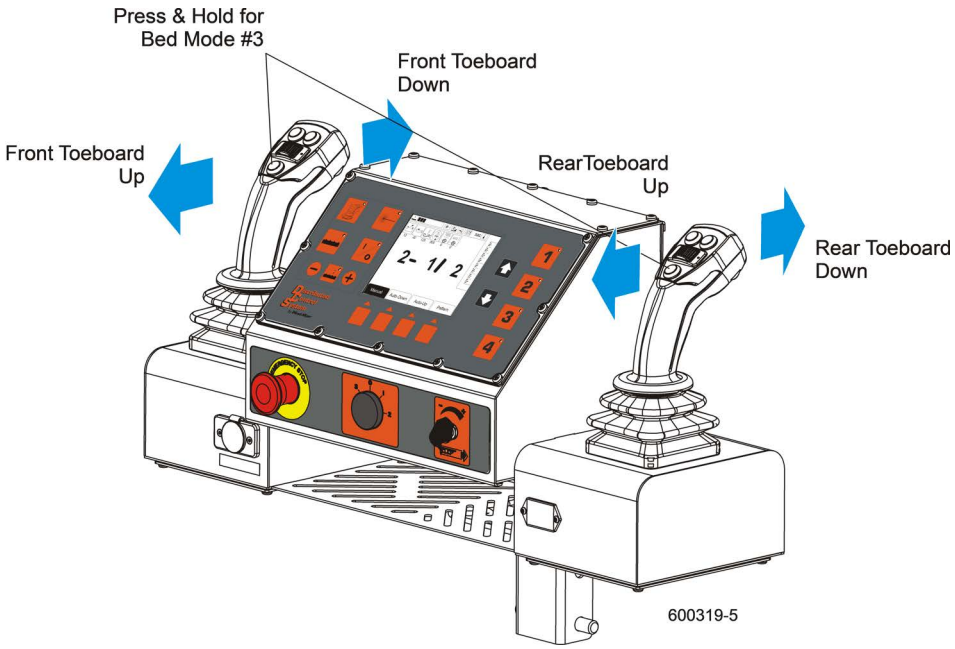


FIG. 4-4

10. The front toe board is raised by pulling back on the left joystick. The rear toe board is raised by pulling back on the right joystick. Once a flat has been made and the log is ready to be turned, push the appropriate joystick forward to lower either toe board until it falls below the level of the bed.

4.2 Loading, Turning And Clamping Logs

TO LOAD LOGS

1. Start the engine and move the saw carriage to the front end of the frame.

CAUTION! Before loading a log, be sure the saw head is moved far enough forward so the log does not hit it. Failure to do so may result in machine damage.

CAUTION! Be sure the log clamp, pivot rails, turning arm and toe boards are adjusted out of the path of the log before loading a log onto the bed. Failure to do so may result in machine damage or cause misalignment.

2. Raise the side supports to prevent the log from falling off the side of the bed.
3. Use cant hooks or loading equipment to move the log to the foot of the loading arms.
4. Roll the log onto the loader so that it is approximately centered with the sawmill bed.

The log turner will operate much easier if the log is centered on the sawmill bed.

DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs.

5. Hold the **LOG LOADER** lever up until the log rolls onto the mill bed.
6. Raise the **CLAMP UP** lever to prevent the log from rolling off the bed.
7. Clamp the log and lower the loading arm.
8. Leave the loading arm about halfway up while squaring the log. This will stop the log from rolling off the side of the mill.

WARNING! Always leave loading arm halfway up while log is on sawmill bed.

NOTE: Logs also may be loaded onto the mill with a tractor or other equipment specifically designed for that purpose.

CAUTION! Do not drop the log on the bed. Damage to the frame may occur.

TO TURN LOGS

1. Raise the log turner until the arm touches the log.
2. Spin the log against the side supports until it is turned the way you want it for the first cut.

TO TURN LOGS (OPTIONAL PROCEDURE)

If you are turning a small cant, you may opt to use the clamp to turn the cant.

1. Lower the clamp below bed level.
2. Move the clamp in, beneath the edge of the cant.
3. Raise the clamp and flip the cant.

TO CLAMP LOGS

1. Clamp the log against the side supports.
2. Lower the turner until the arm falls below the bed.
3. When the turner arm is lowered all the way, the side supports will begin to lower. Back the clamp off slightly, and let the side supports come down until they are positioned below the level of your first few cuts.

TO LEVEL A TAPERED LOG

Raise the front or rear toe board until the heart of the log measures the same distance from the bed rails at each end of the log.

4.3 Up/Down Operation (DCS)

This section describes operation of the up/down system with the DCS control in manual mode. *See Section 4.8* for alternate instructions for operating the up/down system in Auto or Pattern modes.

1. Install a blade, if needed, and check for correct blade tension (*See Section 3.3*).
2. Set the cutting head to the desired height (The control display shows the height of the blade above the bed rails).

   Pull the right joystick back to raise the cutting head; push the joystick forward to lower the cutting head. Hold the joystick in position until the cutting head reaches the desired height, then release.

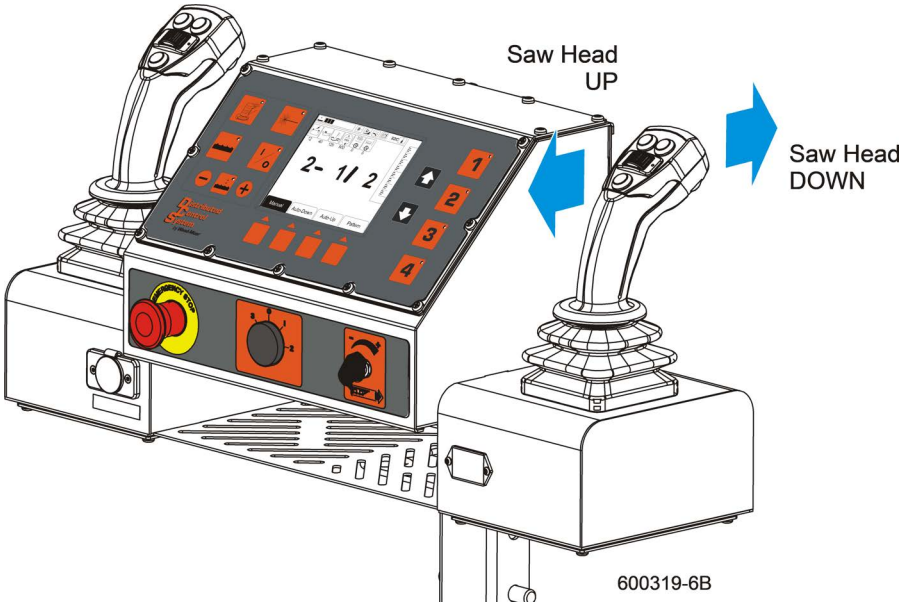


FIG. 4-5

CAUTION! DO NOT try to force the carriage above the 35" (88 cm) mark or below the 1" (2.54 cm) mark. Damage to the up/down system may result.

4.4 Blade Guide Arm Operation (DCS)

1. Look down the length of the log to see its maximum width. The outer blade guide should be adjusted to clear the widest section of the log by less than 1" (25.4 mm).
2. Use the rocker switch on the right hand joystick to adjust the outer blade guide as necessary. Push the switch to the left to move the arm in. Push the switch to the right to move the arm out.

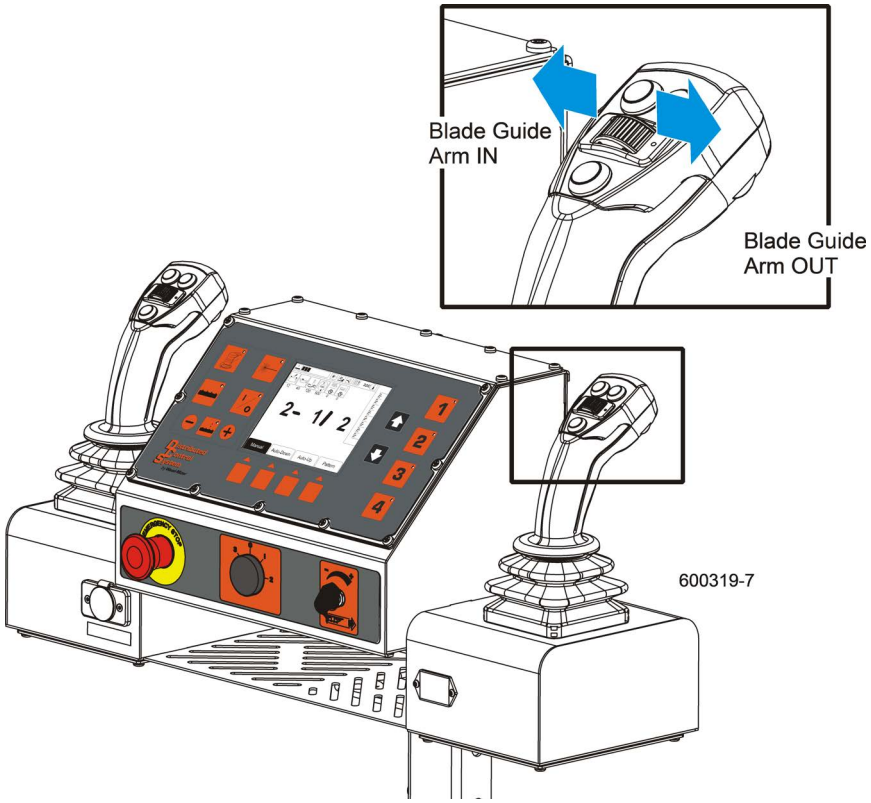


FIG. 4-6

3. Use the blade guide toggle switch to readjust the outer blade guide as you are cutting in order to keep the guide within 1" (2.5 cm) of the log. Be sure to adjust the arm back out before returning the carriage.

4.5 Autoclutch Operation (DCS)

The sawmill is equipped with an automatic clutch mechanism that remotely engages/disengages the blade using a switch on the control box.

To engage the blade, push the blade on/off switch on the control panel. You must push the switch twice within a few seconds to activate the blade. The autoclutch mechanism will disengage the brake, rev the motor to full throttle, and start the blade spinning.

DANGER! Keep all persons out of the path of moving equipment and logs when operating sawmill or loading and turning logs. Failure to do so will result in serious injury.

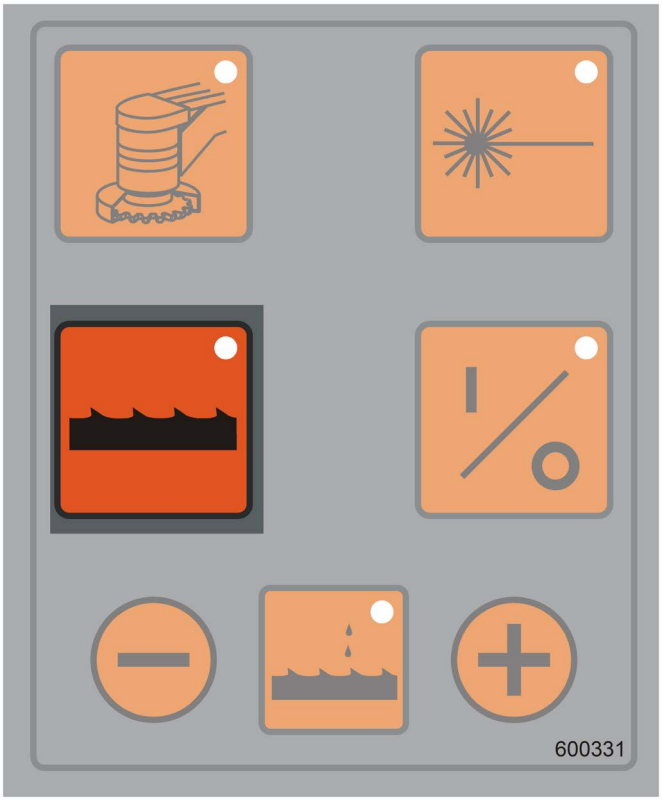


FIG. 4-7

To stop the blade and engage the blade brake, push the blade on/off switch once. This will also return the engine to idle.

4.6 Power Feed Operation (DCS)

The power feed system moves the carriage forward and backward by using the left joystick and the feed rate switch on the control panel.

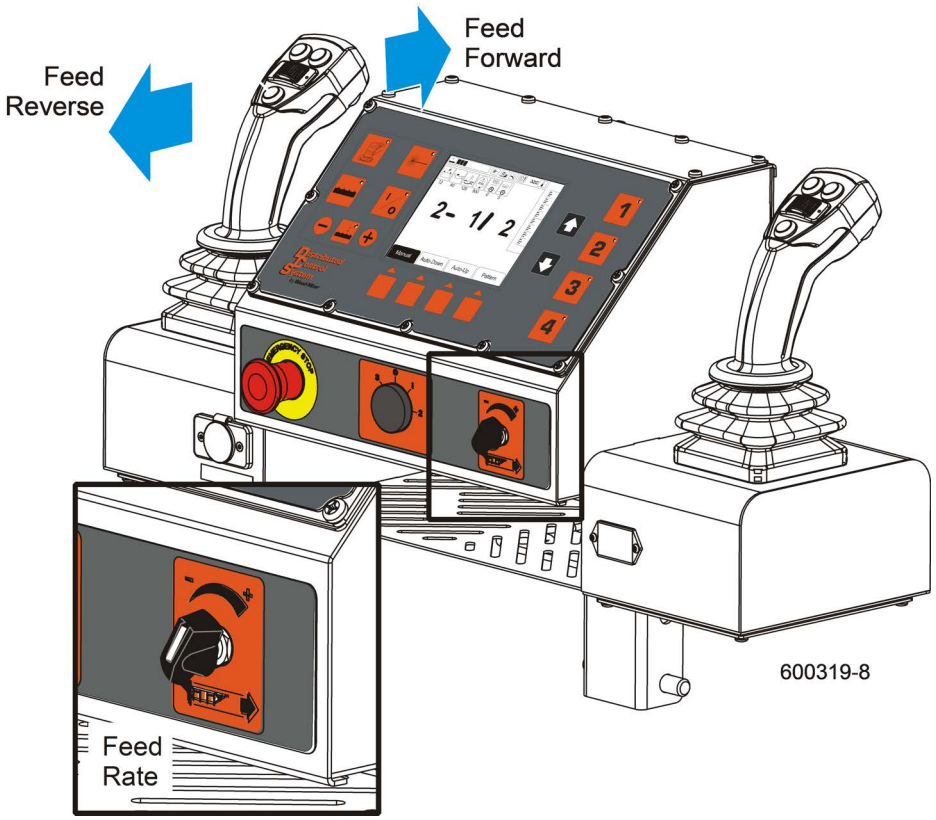


FIG. 4-8

Carriage Feed Rate

The carriage feed rate switch controls the maximum speed at which the carriage travels forward. Turn the switch clockwise to increase speed. Turn it counterclockwise to reduce speed.

Carriage Forward and Reverse

The left joystick controls the direction in which the carriage travels. Push the joystick forward to move the carriage forward. Pull the joystick back to move the carriage backward. As you push or pull the joystick further, the feed travel rate will increase (up to the speed set by the feed rate switch).

Release the left joystick to return to the neutral position.

Using The Power Feed

1. To move the carriage forward, push the left joystick forward and turn the feed rate switch clockwise.

NOTE: To get a straight cut in the first part of the board, feed the blade into the log at a slow speed. This stops the blade from flexing and dipping up or down. Turn the carriage feed rate switch to a slow speed until the whole width of the blade has entered the cut. Then push the joystick forward to increase the feed rate as desired. Maximum feed rate varies with width and hardness of the wood. Over-feeding results in engine and blade wear, and also produces a wavy cut.

2. Stop the carriage at the end of the cut by releasing the joystick. Push the blade on/off switch to stop the blade and drop the engine to idle. Remove the board from the top of the log. **Always disengage the blade before returning the carriage for the next cut.**

CAUTION! Be sure to stop the blade when returning the carriage. This will not only prevent the blade from being pulled off and ruined by a wood sliver, but also will increase the life of the blade. *See Section 4.11* for optional sawing procedure.

3. Make sure that the blade does not catch on the end of the log. Raise the carriage slightly to make sure the blade clears the log when returned.

4. Return the carriage to the front of the mill by pulling the left joystick back. *See Section 4.11* for optional sawing procedure.

NOTE: Try to stop the blade while the heel of the blade is still on the log. Then bring the carriage back without adjusting the blade up. This lets you keep the blade at the current height setting so you can make the next blade height adjustment more quickly.

DANGER! Stay clear of the area between the trailer axle and saw carriage. Failure to do so will result in serious injury.

4.7 DCS Control Operation

Display Overview

See a description of the various display components below.

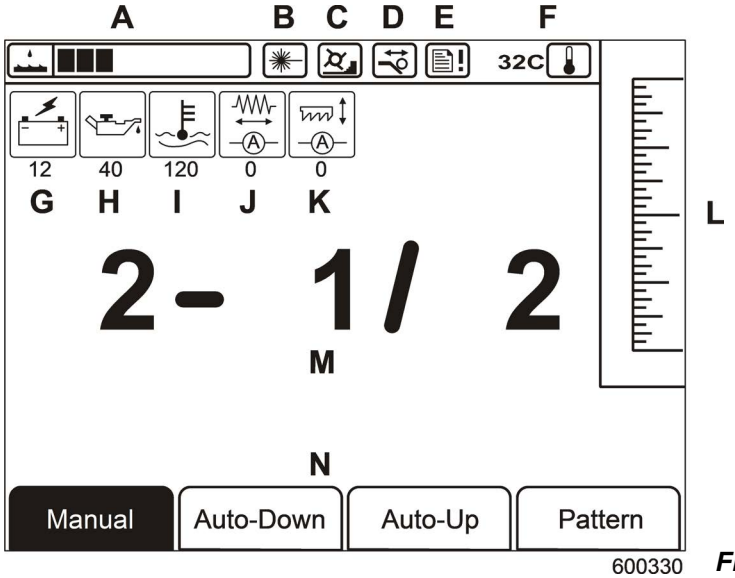


FIG. 4-9

	Lube-Mizer	
A		Off
		On
		Flow Rate

	Laser	
B	none	Option not installed
		Off
		On

	Debarker	
C	none	Option not installed
		Off
		On

	Log Deck	
D	none	Option not installed
		Off
		On

E	**Notification**	
	none	No warning or critical errors
		Warning detected
		Critical error detected
F		Ambient Temperature
G		Operating Voltage
H		Engine Oil Pressure
I		Engine Water Temperature
J		Feed Motor Current
K		Up/Down Motor Current
L		Inch or MM Scale
M	2- 1/ 2	Blade Position
N		Sawing Mode Selection

Configuration

DCS controls on new sawmills are configured at the factory. If you have installed or replaced the control, be sure to configure the control as described below before operating the sawmill.

To enter User Configuration screen, push the UP button while in Manual Mode.

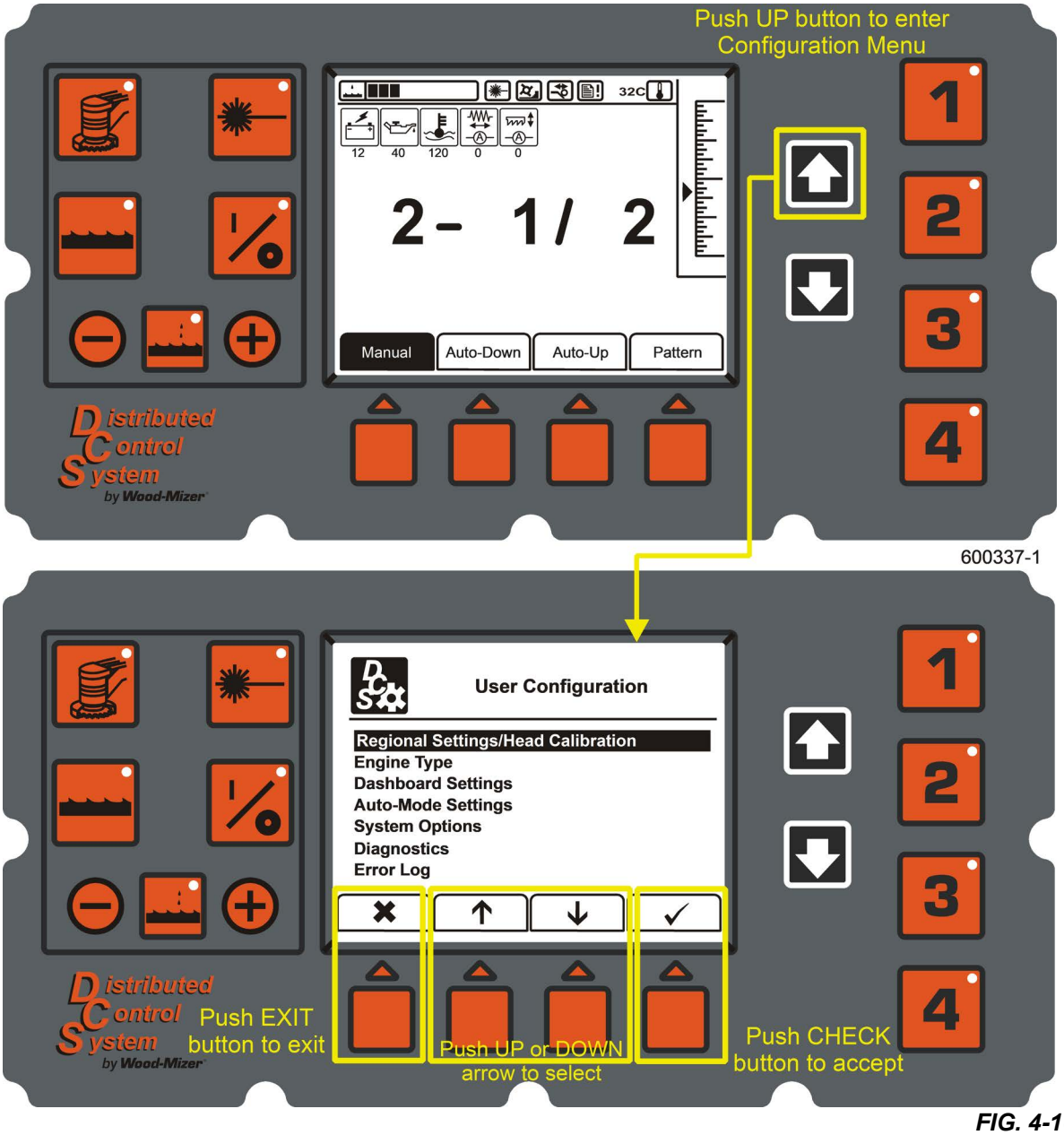


FIG. 4-10

Language

When in User Configuration menu, use the UP/DOWN arrows to select the Regional Settings/Head Calibration menu. Push the CHECK button at the bottom of the display to enter. Select the Language and push the CHECK button to enter. Use the UP/DOWN arrows to select the desired language used for the DCS display. Push the SAVE button to save the changes and to exit the User Language Settings screen.

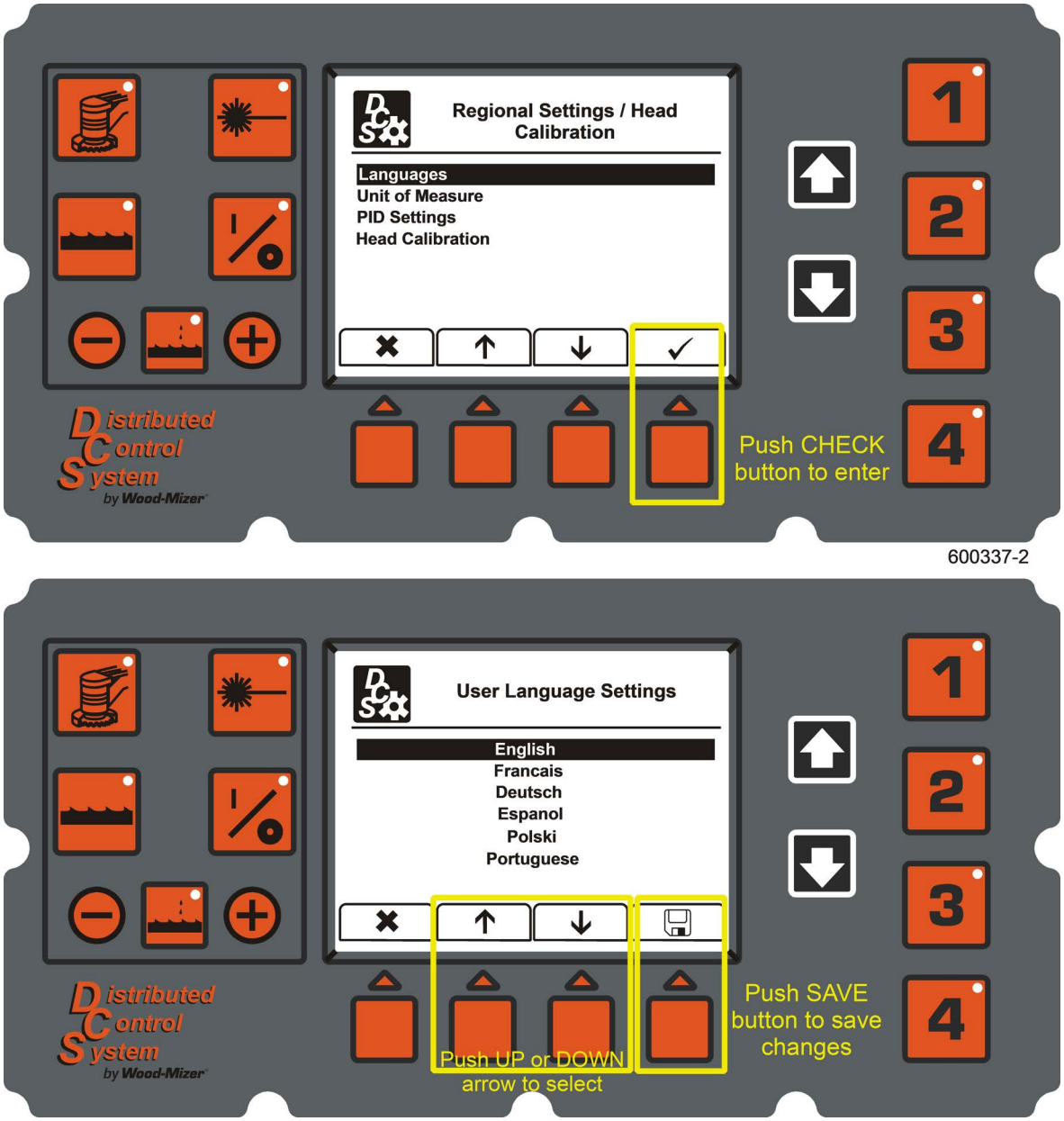


FIG. 4-11

Unit of Measure

This setting allows to choose what units of measure, temperature and pressure are used when operating the DCS control. From the Regional Settings/Head Calibration menu, select Unit of Measure Settings and push the CHECK button to enter. Use the UP/DOWN arrows at the bottom to select the setting. Use the UP/DOWN buttons to change the setting. Push the SAVE button to save the changes and exit.

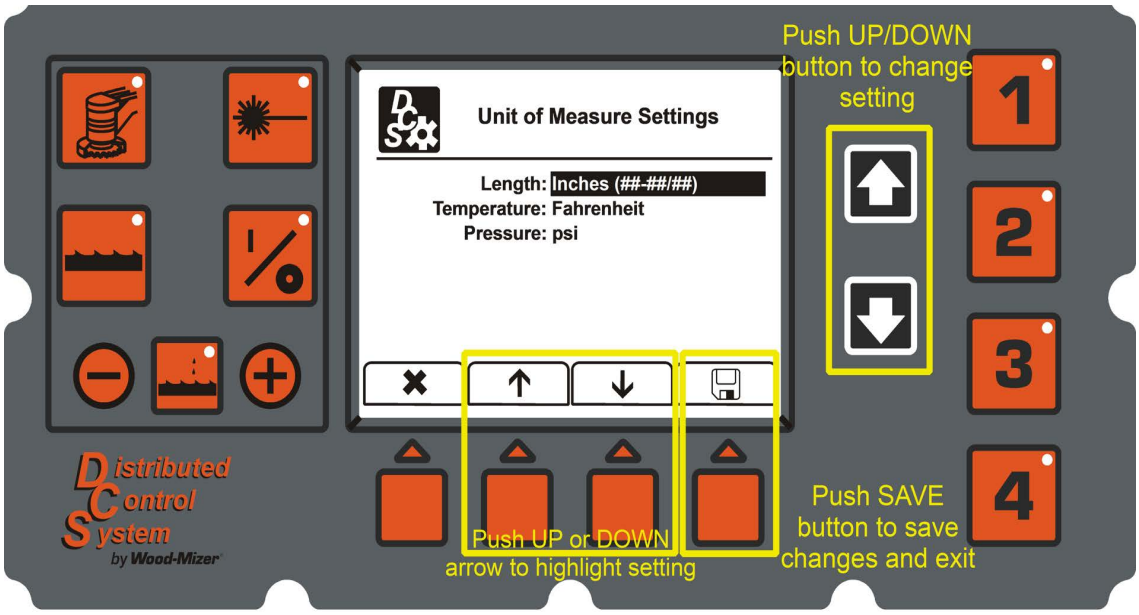


FIG. 4-12

PID (Proportional - Integral - Differential)

These settings allow a technician to diagnose and fine-tune the DCS control for various environmental factors. These settings are made at the factory and should not normally need adjusting by the operator.

Head Calibration

These settings allow to calibrate the sawhead, if necessary. These settings are made at the factory and, except for the kerf, should not normally need adjusting by the operator.

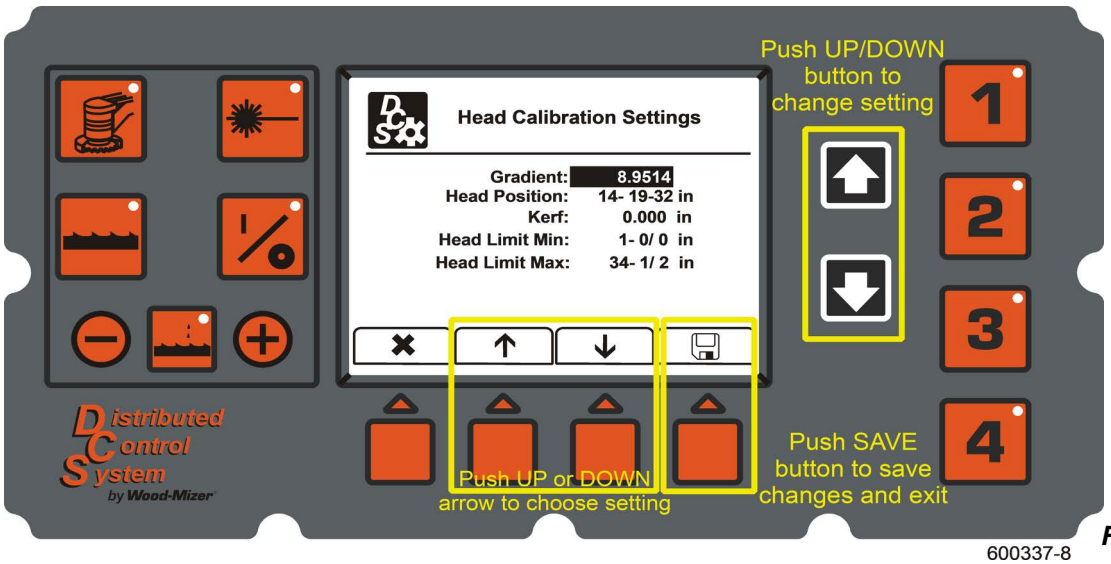
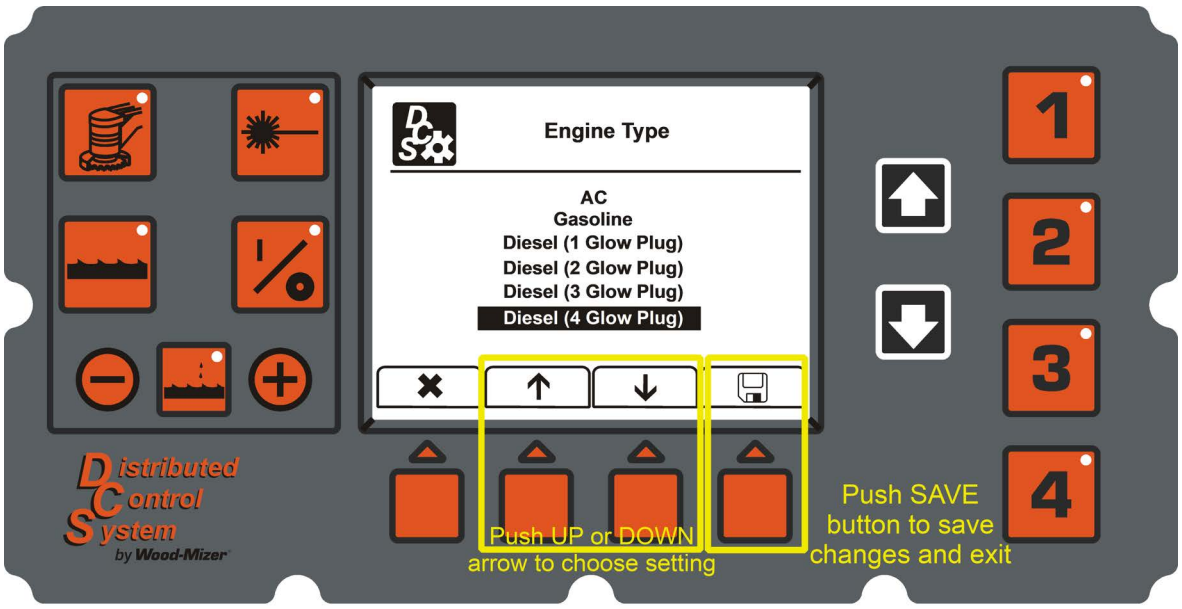


FIG. 4-13

Engine Type

This menu allows you to choose the engine option used on the sawmill. From the User Configuration menu, select the Engine Type menu and push the CHECK button to enter. Use the UP/DOWN arrows at the bottom to select the engine type used on the sawmill. Push the SAVE button to save the changes and exit.

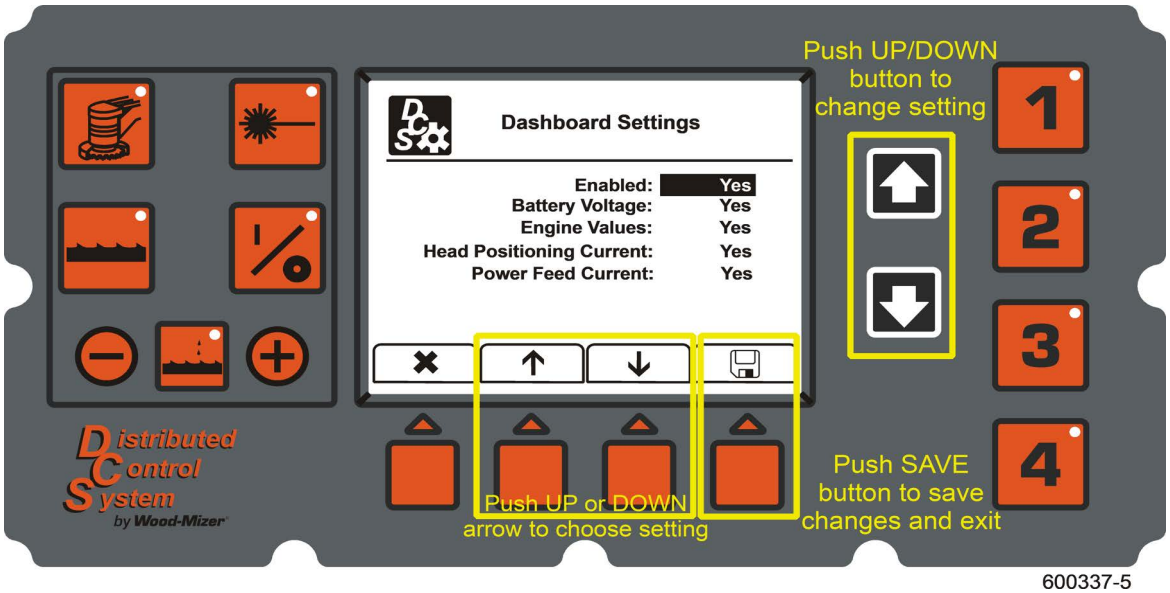


600337-4

FIG. 4-14

Dashboard Settings

You can choose what icons are shown in the upper left corner of the DCS display. From the User Configuration menu, select the Dashboard Settings menu and push the CHECK button to enter. Use the UP/DOWN arrows at the bottom to select the setting. Use the UP/DOWN buttons to change the setting. Push the SAVE button to save the changes and exit.



600337-5

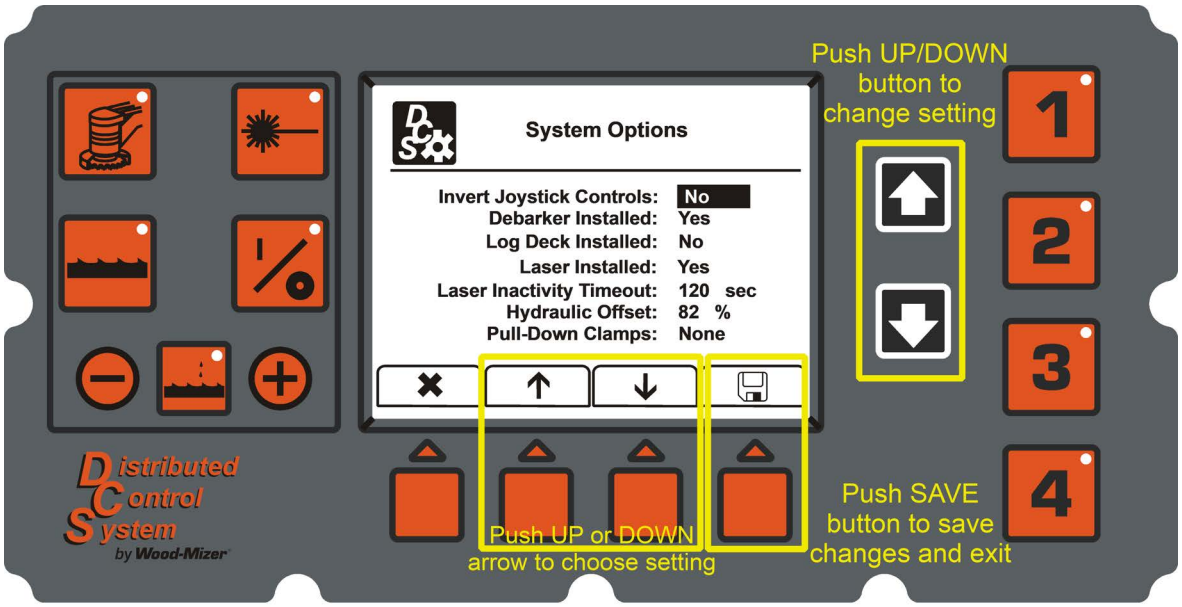
FIG. 4-15

Auto Mode Settings

See Section 4.8 for more information on the Auto Mode Settings.

System Options

From the User Configuration menu, select the System Options menu and push the CHECK button to enter. The System Options menu allows you to invert the joystick controls if sawing from the rear of the machine, or to add/remove sawmill options. The Hydraulic Offset option allows you to change the resolution of the proportional hydraulic functions. To change any of the settings, use the UP/DOWN arrows at the bottom to select the desired setting. Use the side UP/DOWN buttons to change the setting as necessary. Push the SAVE button to save the changes and exit.



600337-6

FIG. 4-16

Diagnostics

The Diagnostics menu allows you to check the software revisions, blade guide arm, debarker in/out motor currents (amperage), and the condition of the potentiometer. It can also be used to calibrate and troubleshoot the joystick controls. To enter the Diagnostics menu, select Diagnostics from the User Configuration menu. Use the LEFT/RIGHT arrows at the bottom of the display to switch the screens. Push the EXIT buttons to exit.

To test the movements of the joysticks and to recalibrate their center positions, go to diagnostic screen #3 (see below).

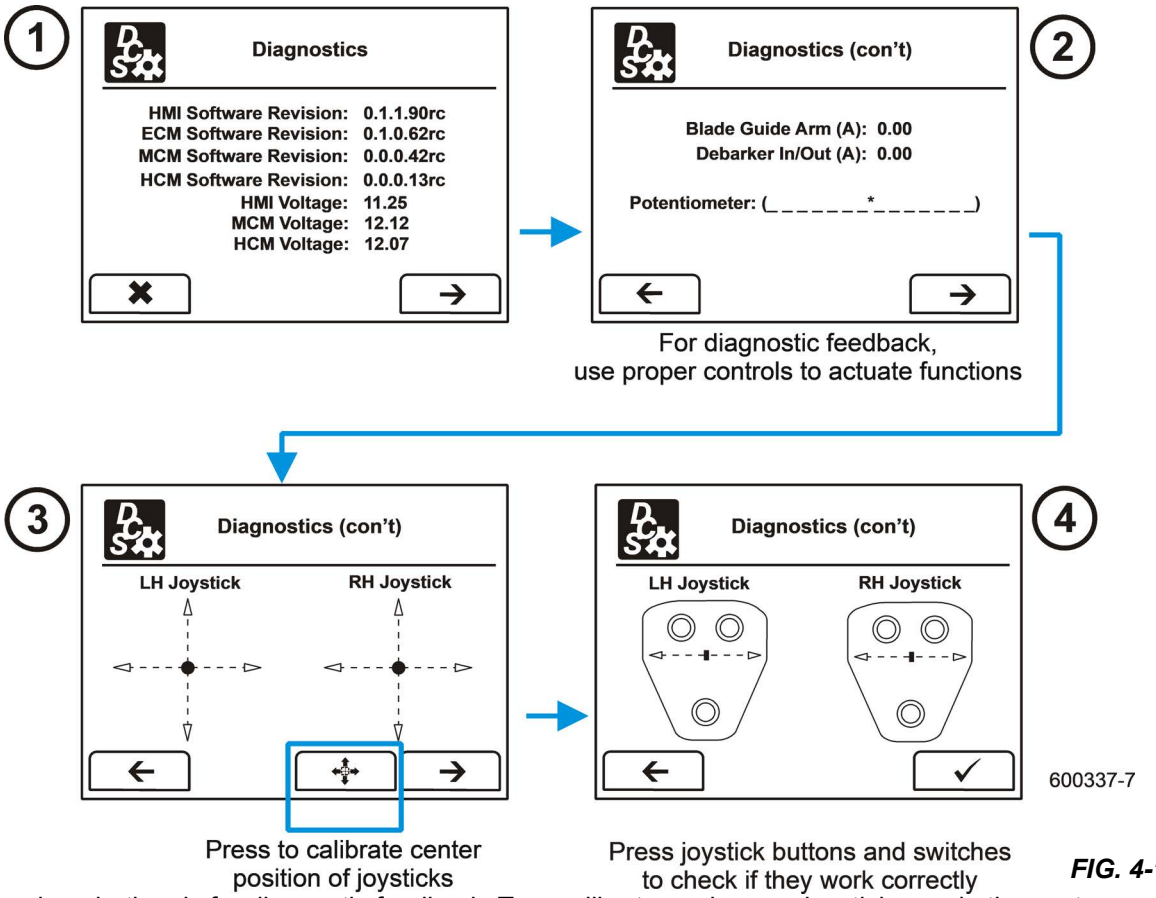


FIG. 4-17

Move joysticks along both axis for diagnostic feedback. To recalibrate, make sure joysticks are in the center position and press the calibration button as shown below.

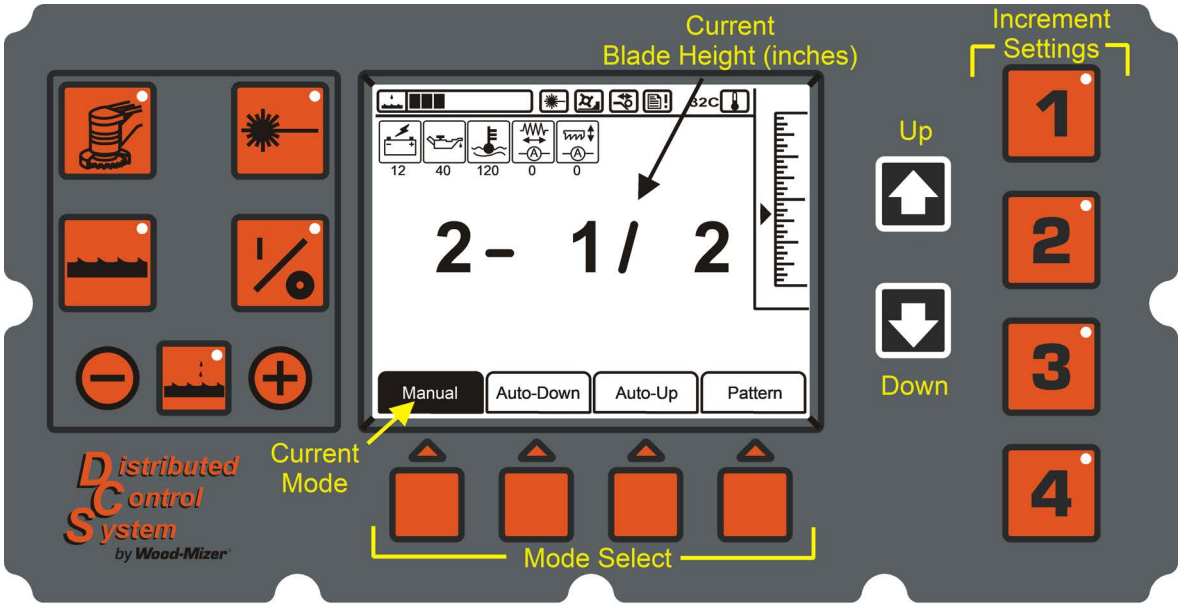
Error Log

The Error Log allows you to see any errors that occurred during sawmill operation. This information can be used to diagnose and correct the problem. To display the Error Log screen, select the Error Log option from the User Configuration menu. *See Section 6.5* for error code definitions.

4.8 Auto-Setting Feature

Mode Selection

To select an Auto-Set mode, press the desired Mode Select button (Manual, Auto-Down, Auto-Up or Pattern) located under the display. Press the Manual Mode Select button to return the control to Manual Mode.



600338-1
FIG. 4-18

Manual Mode - This mode allows you to use the up/down function of the sawmill as you normally would without any Auto-Set features. The Current Blade Height will continue to be displayed by the control system.

Auto-Down Mode - This mode *references the current blade height* and allows you to choose an increment to move the blade *down*. The control system will automatically move the saw head down and stop at the next increment when you push the joystick down. You can store sixteen different increment levels using the four numbered Increment Settings buttons. Each button stores four adjustable increment settings. Push button #1 once for setting #1A. Push button #1 a second time for setting #1B, etc...

Auto-Up Mode - This mode *references the current blade height* and allows you to choose an increment to move the blade *up*. The system will automatically move the saw head up and stop at the next increment when you push the joystick up. Auto-Up mode is primarily used to raise the saw head in large increments when preparing to cut a new log or log that has been turned. This allows the operator to raise the saw head without having to hold the joystick up, freeing the operator to perform other functions while the saw head is being raised. The Increment Settings buttons work in the same manner as described in Auto-Down Mode.

Pattern Mode - This mode *references the bed surface* and allows you to program up to six different increments calculated up from the bed. The sixth (top) increment repeats itself up to the upper limit of the saw head travel. The bottom increment indicates the size of the remaining cant when the pattern is complete.

All the Auto-Down, Auto-Up and Pattern Modes settings can also be adjusted through the Auto Mode Settings menu. See *Auto-Mode Settings Menu* below for more information.

Using Auto-Down Mode

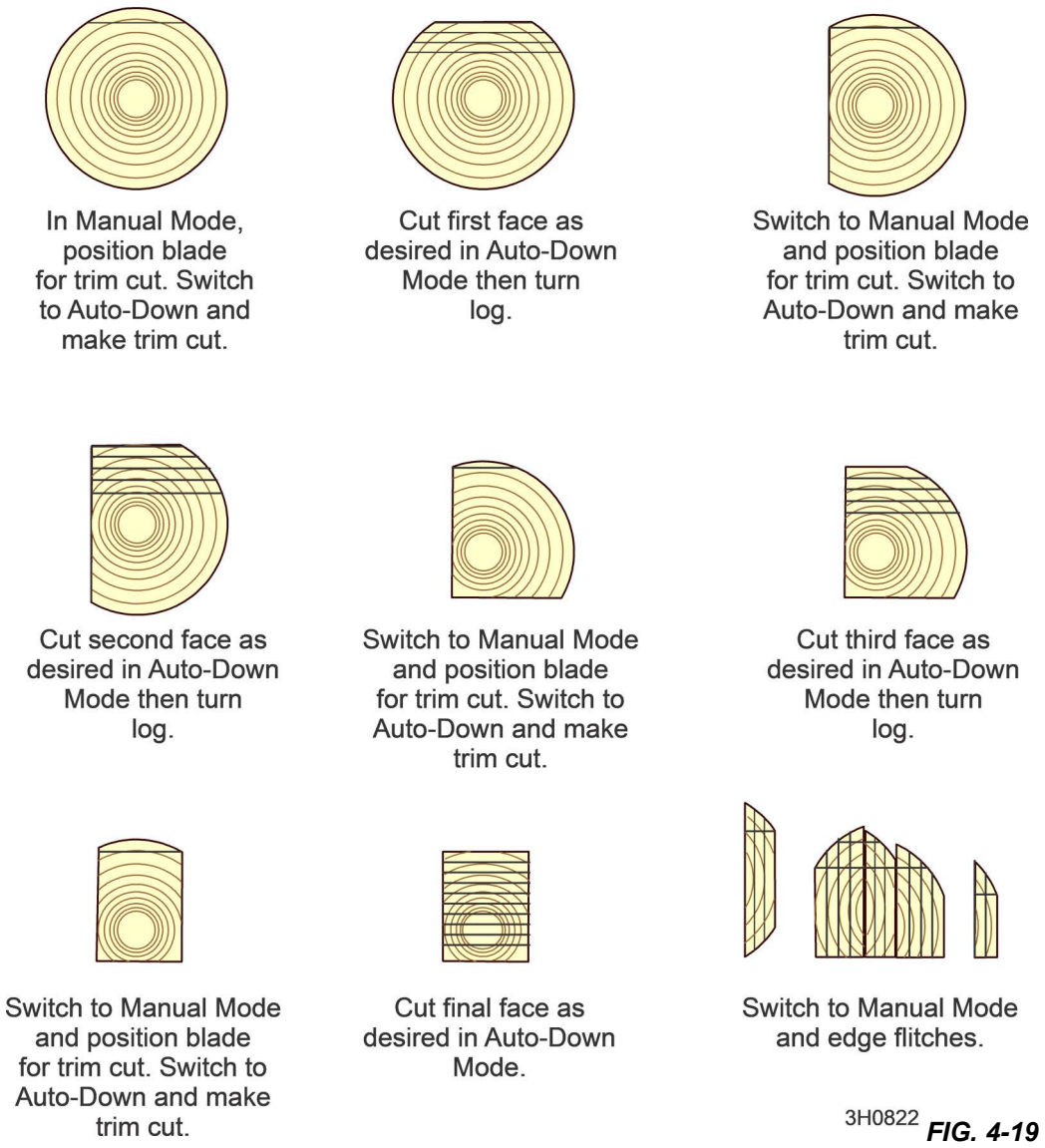


FIG. 4-19

Starting with a new log, position the saw head to make the first trim cut.

Push the Auto-Down button under the display. The first Increment Setting is displayed by default. Choose the desired increment setting by pushing the appropriate Increment Setting button.

To change an Increment Setting, select the desired setting number and push the Up or Down buttons until the desired Increment Setting is obtained. Remember to include blade kerf in your setting (i.e. If you want the finished boards to be 1" thick, set the increment to 1 1/8" to allow for typical blade kerf). The amount of kerf will depend on the thickness and tooth set of the blade you are using. The system can be programmed with an automatic kerf setting if desired.

When you change an increment value, it is automatically stored. See *Auto-Mode Settings Menu* below for more information on how to adjust the increment settings using the Auto-Mode Settings Menu.

Push the Auto-Down button to return to Auto-Down Mode if necessary. Make the trim cut, raise the saw head and return the carriage to the front of the log.

Push the up/down joystick forward and release. The saw head will automatically bypass the setting where the first cut was made and stop at the next setting determined by the increment you have chosen.

Make a cut, raise the saw head and return the carriage for the next cut. Push the up/down joystick forward and release. The saw head will stop at the setting for the next cut. Repeat this procedure down this face of the log as desired.

Turn the log as you normally would and push the Manual Mode button to place the control system in Manual Mode.

Position the saw head for the trim cut and push the Auto-Down button to return to Auto-Down Mode. Make the trim cut, raise the saw head and return for the next cut. Use the same procedure as described above to cut each side of the log until done.

> **NOTE:** Anytime a trim cut is necessary, you can push the Manual button to enter Manual Mode. Position the saw head for the trim cut and push the Auto-Down button to return to Auto-Down Mode. The control system will reference the new blade position and stop at the next setting determined by the increment you have chosen.

Using Auto-Up Mode

Auto-Up Mode works exactly the same as Auto-Down explained above except it controls the saw head movement in the up direction.

Using Pattern Mode

Starting with a new log, position the saw head at the front end of the log.

Push the Pattern button under the display. Choose the desired pattern setting by pushing the appropriate Increment Setting button.

In Pattern mode, a list of six increments is shown on the display. These increments are referenced from the bed rail. The bottom increment represents the distance from the bed rail for the last cut. Each increment in the list can be adjusted as desired. The top increment repeats as necessary depending on how high you raise the saw head.

See *Auto-Mode Settings Menu* below for more information on how to adjust the pattern increment settings using the Auto-Mode Settings Menu.

Push the Manual Mode button and raise the saw head so the blade is positioned near the top of the log. Push the Pattern button to return to Pattern Mode.

Push the up/down joystick forward and release. The saw head will automatically stop at the first setting determined by the top pattern increment.

Make a cut, raise the saw head and return the carriage for the next cut. Push the up/down joystick forward and release. The saw head will stop at the setting for the next cut. Repeat this procedure down this face of the log as desired.

> **NOTE**: The first push of the joystick sets the head "on scale" to produce consistent increments from the bed rails up to the current location. Therefore, the first drop after entering the Pattern Mode may not be the thickness programmed.

Turn the log as you normally would and push the Manual Mode button to place the control system in Manual Mode.

Raise the saw head so the blade is positioned near the top of the log and push the Pattern button to return to Pattern Mode. Make the cut, raise the saw head and return for the next cut. Use the same procedure as described above to cut each side of the log until done.

Auto-Mode Settings Menu

The control system allows an operator to setup all the necessary auto-up/auto-down, pattern and reference settings by using the Auto-Mode Settings Menu. From the Main screen, enter the User Configuration menu by pressing the UP button on the right side of the display. Use the UP/DOWN arrows at the bottom of the display to highlight the Auto-Mode Settings. Press the CHECK button to enter the Auto Mode Settings menu.

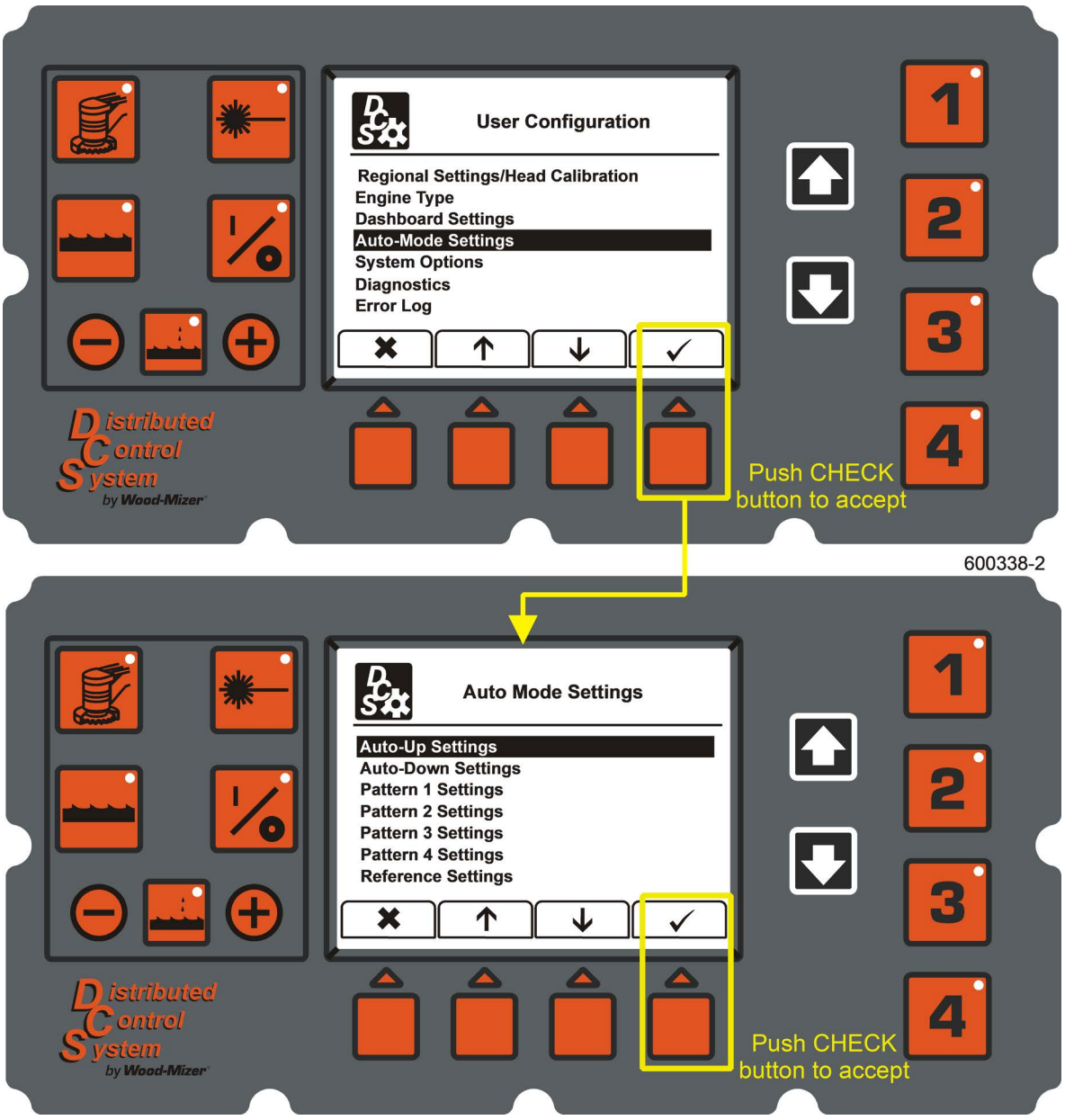
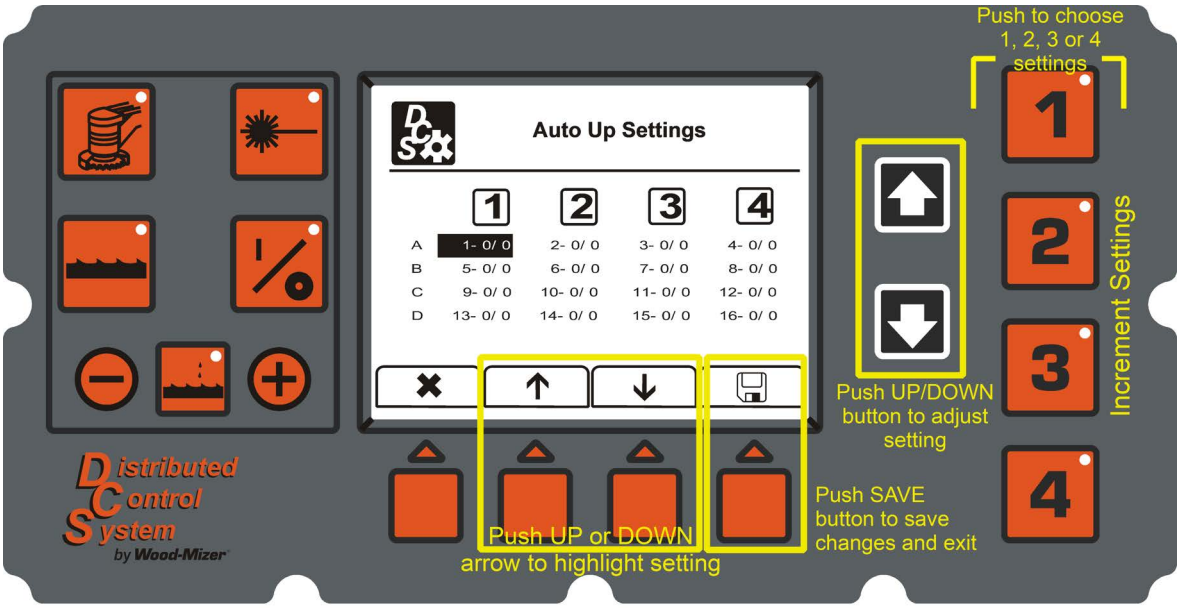


FIG. 4-20

Auto-Up Settings. Select the Auto-Up Settings from the Auto Mode Settings menu to enter the Auto-Up Settings screen. Use the Increment Settings buttons to choose settings 1, 2, 3 or 4. Use the UP/DOWN arrows at the bottom of the display to highlight the settings you want to adjust. Use the UP/DOWN buttons on the right side of the display to adjust the setting. Press the SAVE button to save the settings and exit.

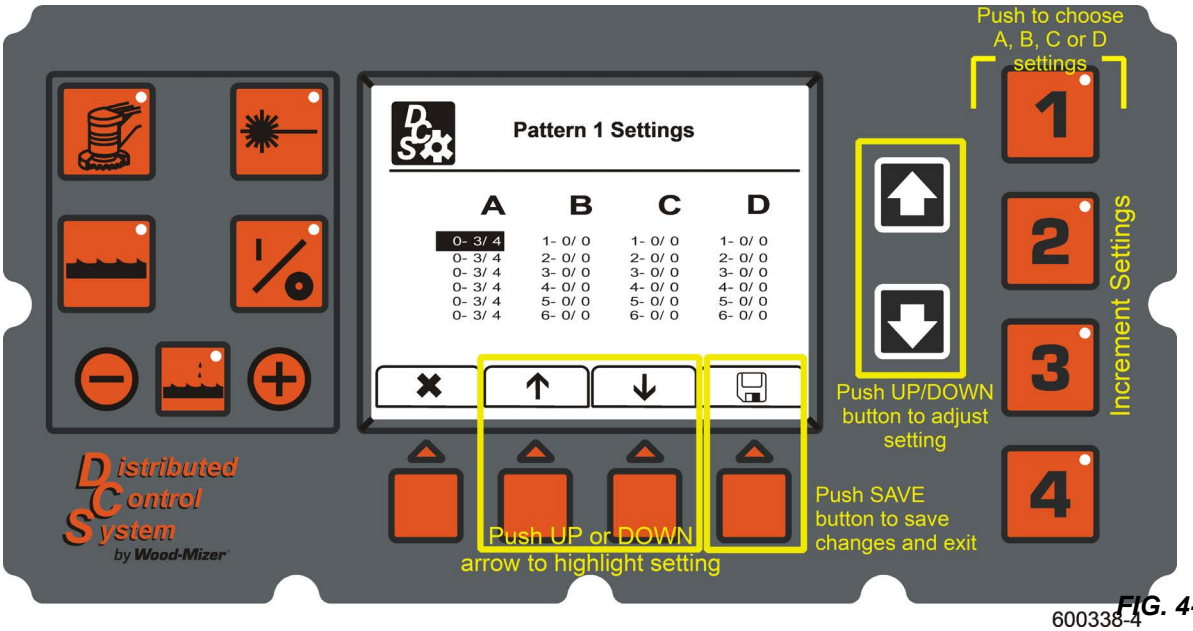


600338-3

FIG. 4-21

Auto-Down Settings. Select the Auto-Down Settings from the Auto Mode Menu to adjust the Auto-Down Settings. The Auto-Down Settings adjustment works exactly the same as the Auto-Up Settings adjustment explained above.

Pattern Settings. Select the Pattern 1 Settings from the Auto Mode Settings menu to display the Pattern 1 Settings. Use the Increment Settings buttons to choose settings A, B, C or D. Use the UP/DOWN arrows at the bottom of the display to highlight the settings you want to adjust. Use the UP/DOWN buttons on the right side of the display to adjust the setting. Press the SAVE button to save the settings and exit.

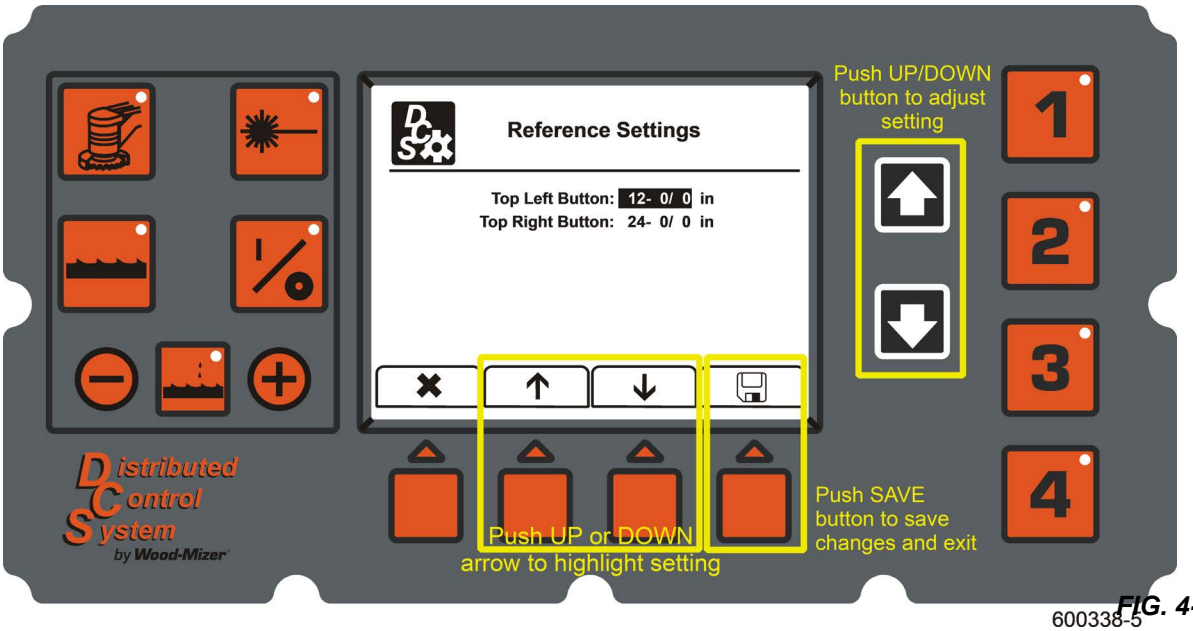


600338-4

FIG. 4-22

Select and adjust the Pattern 2, 3, and 4 Settings the same way as described for Pattern 1 Settings.

Reference Settings. Select the Reference Settings from the Auto Mode Settings menu to enter the Reference Settings menu. Use the UP/DOWN arrows at the bottom of the display to highlight the settings you want to adjust. Use the UP/DOWN buttons on the right side of the display to adjust the setting. Press the SAVE button to save the settings and exit.



600338-5 ***FIG. 4-23***

Joystick Auto-Mode Operation

You can use the left and right joysticks to switch to the desired auto-mode setting. Press the top left button on the left joystick to toggle between Manual Mode and the most recently used auto-mode setting. Push the left joystick forward and press the top right button on the left joystick to store the joystick position for use with the resaw attachment feature.

Press the top left button on the right joystick while in Manual Mode to go to Reference 1 setting. Press the top right button on the right joystick while in Manual Mode to go to Reference 2 setting. While in Reference 1 or 2 actuate the joystick in the appropriate direction to move to Reference Point.

Press the top left button on the right joystick while in Auto-Mode to set the current head position as Reference 1. Press the top right button on the right joystick to set the current head position as Reference 2.

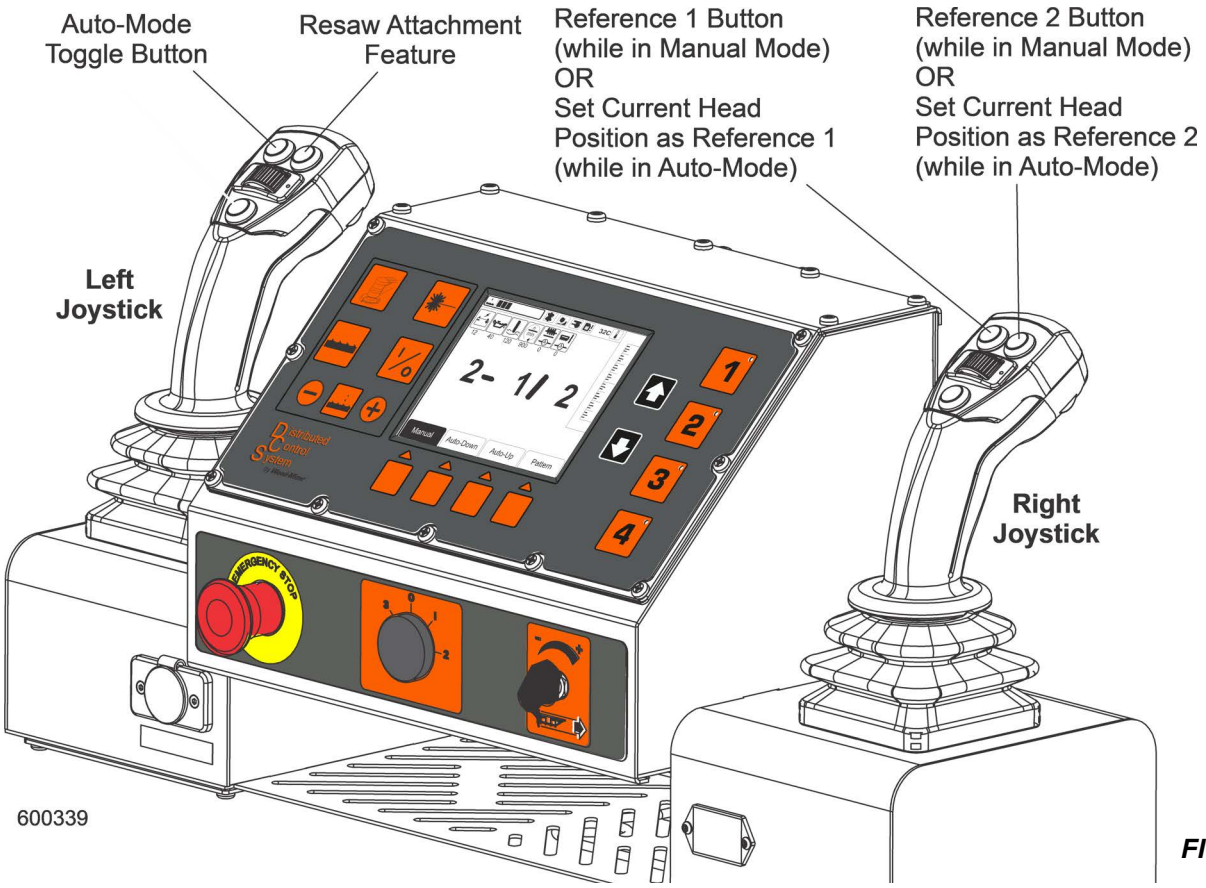


FIG. 4-24

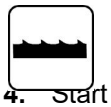
4.9 Cutting The Log

The following steps guide you through normal operation of the Wood-Mizer sawmill.

1. Once the log is placed where you want it and clamped firmly, move the saw head to position the blade close to the end of the log.
2. Use the blade height scale to determine where to make your first cut (*See Section 4.12*). The blade height scale will help you to do this. Set the blade to the desired height with the right joystick. Make sure that the blade will clear all side supports and the clamp. Adjust the outer blade guide to clear the widest section of the log by using the right joystick rocker switch.

NOTE: An optional laser sight is available to help determine where the blade will travel through the log. See the laser sight manual for detailed operating instructions.

3. Push the blade on/off switch twice to start the blade spinning.



4. Start the water lube if necessary to prevent sap buildup on the blade. *See Section 4.13*.
5. Push the left joystick forward to feed the blade into the log slowly *(See Section 4.6)*. Once the blade completely enters the log, push the joystick forward to increase the feed rate as desired. Always try to cut at the fastest speed you can while keeping an accurate cut. Cutting too slowly will waste blade life and lower production!
6. As you get to the end of the log, slow down the feed rate. When the teeth exit the end of the log, stop the carriage. Push the blade on/off switch to stop the blade. Remove the slab that you have just cut from the log.
7. Pull the left joystick back to return the carriage to the front of the mill.
8. Repeat until the first side of the log is cut as desired. Set aside the usable flitches (boards with bark on one or both sides). You can edge them on the mill later.
9. Lower the toe boards, if they were used. Use the joysticks in bed mode to release the clamp and engage the log turner. Turn the log 90 or 180 degrees. Make sure the flat on the log is placed flat against side supports if turned 90 degrees. Make sure it is placed on bed rails if turned 180 degrees. If the log was turned 90 degrees and you are using the toe boards to compensate for taper in the log, raise the front or rear toe board again on the second side of the log until the heart is parallel with the bed.
10. Repeat the steps used to cut the first side of the log until the log is square. Cut boards from the remaining cant by adjusting the blade height for the thickness of boards that you want.

Example: Remember that the blade cuts a 1/16 - 1/8" (1.6-3.2 mm) wide kerf. If you want 1" (25.4 mm) thick boards, lower the carriage 1 1/16 - 1 1/8" (27-28.6 mm) for each board.

4.10 Edging

1. Raise the side supports to 1/2 the height of the flitches, or the boards that need to be edged.
2. Stack the flitches on edge against the side supports.
3. Clamp the flitches against the side supports halfway up the flitch height.

   NOTE: Wider flitches should be placed to the clamp side. When they are edged, flip them over to edge the second side without disturbing the other flitches or without having to pull them from the middle of the stack.

4. Adjust the blade height to edge a few of the widest boards.
5. Loosen the clamp and turn the edged boards over to edge the other side.
6. Repeat steps 2-4.
7. Loosen the clamp and remove the boards that have good clean edges on both sides.
8. Clamp the remaining flitches and repeat steps 2-5.

4.11 Optional Cutting Procedure for Super Series Mills

In order to achieve maximum production rates with Super Series mills, it may be desirable to leave the blade engaged when returning the carriage. (Normal operation procedures recommend disengaging the blade before returning the carriage for maximum blade life and fuel economy.)

DANGER! If leaving the blade engaged for maximum production rates, make sure the off-bearer stays out of the path of the blade. Failure to do so will result in serious injury or death.

CAUTION! If you choose to leave the blade engaged; raise the blade to clear the log before returning the carriage. Failure to do so may cause damage to the blade and/or sawmill.

4.12 Blade Height Scale

The blade height scale is attached to the carriage head frame. It includes:

- a blade height indicator
- an inch scale
- a quarter scale

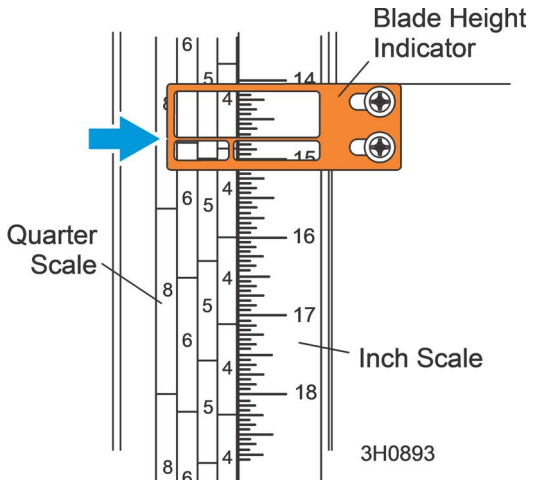


FIG. 4-25

The scales are attached to the frame and move up and down with the saw head. The blade indicator, used to read the inch and quarter scales, remains stationary.

THE INCH SCALE

The horizontal line on the blade height indicator shows how many inches the bottom of the blade is above the bed of the mill. Knowing the height of the blade at each cut, the thickness of lumber being sawed can be determine.

Example: 1" (25 mm) thick boards are wanted from random width boards from a log.

1. Position the blade for the first cut. Move the carriage to an even measurement on the inch scale.
2. Make a trim cut.
3. Return the carriage for the second cut and lower it 1 1/8" (29 mm) below the original measurement. (The extra 1/8" (3 mm) allows for saw kerf and shrinkage of the lumber.)

   NOTE: The yellow area on the scale identifies where the blade could encounter a side support or log clamp.

4. Check that these items are below the blade level before sawing.

THE QUARTER SCALE

Two quarter scales are provided with four sets of marks. Each set represents a specific lumber thickness. Saw kerf and shrinkage allowance are included, but actual board thickness will vary slightly depending on blade thickness and tooth set.

To choose which scale to use, determine what finished thickness you want to end up with. The Grade Hardwood Quarter Scale provides thicker finished boards usually required by commercial buyers. The Standard Quarter Scale allows for kerf and shrinkage of finished boards suitable for most custom applications. Always check with your customer before you saw to determine what actual finished thickness is required.

Standard Quarter Scale	
Scale	**Actual Board Thickness**
4/4	1" (25 mm)
5/4	1 1/4" (32 mm)
6/4	1 1/2" (38 mm)
8/4	2" (51 mm)

Grade Hardwood Quarter Scale	
Scale	**Actual Board Thickness**
4/4	1 1/8" (29 mm)
5/4	1 3/8" (35 mm)
6/4	1 5/8" (41 mm)
8/4	2 1/8" (54 mm)

TABLE 4-1

To use the quarter scale, look at the blade height indicator.

Loosen the wing studs holding the quarter scale to the mast. Align the nearest mark on the scale you want to use with the blade height indicator. Tighten the wing studs.

CAUTION! Be sure to leave the wing studs in the vertical orientation to avoid interference with the blade height indicator. Failure to do so may result in damage to the indicator.

Make a trim cut. After returning the carriage for a second cut, lower the carriage to the next mark on the scale. This mark shows where the blade should be positioned to cut a certain thickness of lumber, without having to measure on the inch scale.

Example: 1" (25 mm) (4/4) thick boards are wanted from random width boards from a log.

1. Position the blade for the first cut.
2. Adjust the quarter scale so a 4/4 mark is aligned with the line on the indicator.
3. Make a trim cut.
4. Return the carriage for the second cut.
5. Now, instead of having to measure down 1 1/8" (29 mm) on the inch scale, lower the blade so the indicator is aligned with the next 4/4 mark on the quarter scale.
6. Turn the log 90 degrees and repeat.

4.13 Water Lube Operation

The Water Lube System keeps the blade clean. Water flows from a 5-gallon (18.9 liter) bottle through a hose to the blade guide where the blade enters the log. A valve in the bottle cap controls the amount of water flow.

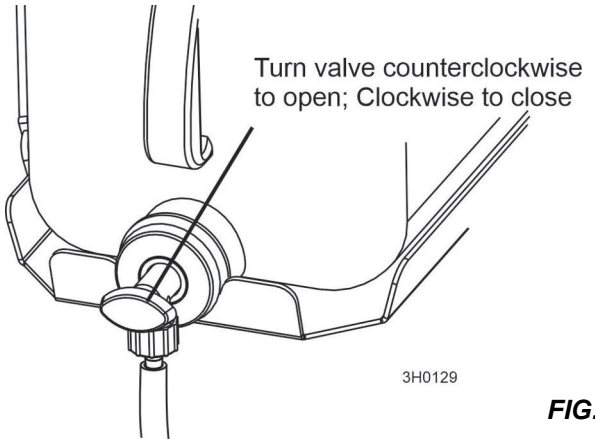


FIG. 4-26

Not all types of wood require the use of the Water Lube System. When it is needed, use just enough water to keep the blade clean. This saves water, and lowers the risk of staining the boards with water. Usual flow will be 1-2 gallons (3.8-7.6 liters) per hour.

Before removing the blade, engage the blade. Let the blade spin with water running on it for about 15 seconds. This will clean the blade of sap buildup. Wipe the blade dry with a rag before storing or sharpening.

For further lubrication benefits, add one 12oz. (0.35L) bottle of Wood-Mizer Lube Additive to 5 gallons (18.9 liters) of water. Wood-Mizer Lube Additive enables some previously impossible timbers to be cut by significantly reducing resin buildup on the blade. It helps to reduce heat buildup, wavy cuts, and blade noise. This biodegradable and environmentally friendly pre-mix includes a water softener additive, so it works with hard water.

WARNING! Use ONLY water and Wood-Mizer Lube Additive with the water lube accessory. Never use flammable fuels or liquids such as diesel fuel. If these types of liquids are necessary to clean the blade, remove it and clean with a rag. Failure to do so can damage the equipment and may result in serious injury or death.

CAUTION! Use windshield washer fluid to the water tank and prime as recommended when sawing or storing the sawmill in below-freezing temperatures. Use windshield washer fluid with a freezing point of at least -20°F (-29°C). Failure to do so may cause damage to the LubeMizer system.

See the separate LubeMizer System manual for operation instructions.

4.14 Preparing The Sawmill For Towing

The Wood-Mizer trailer package makes transporting your sawmill easy and convenient. To get your sawmill ready for towing, follow these instructions.

1. Move the saw carriage to the front end of the sawmill. Raise the rear outriggers See the Fine Adjust Outrigger (FAO) manual for outrigger operation instructions..
2. Move the clamp all the way in toward the main bed frame tube.
3. Use the hydraulic controls to raise the log turner and loader as high as they will go. Manually lift the loader and hook the loader chain to the turner. Use the hydraulic controls to lower the turner until the chain is tight. Push the loader lever down to bring the loader arm channels up to the loader.
4. Move the carriage forward to the travel position over the rear bed rail.

   IMPORTANT! Do not move the saw head beyond the travel position. Damage to the equipment may occur.

5. Position the hole in the saw head over the travel rest pin.
6. Lower the saw head until it is seated firmly on the rest pin.
7. Secure the rest pin in the vertical position with the locking pin.

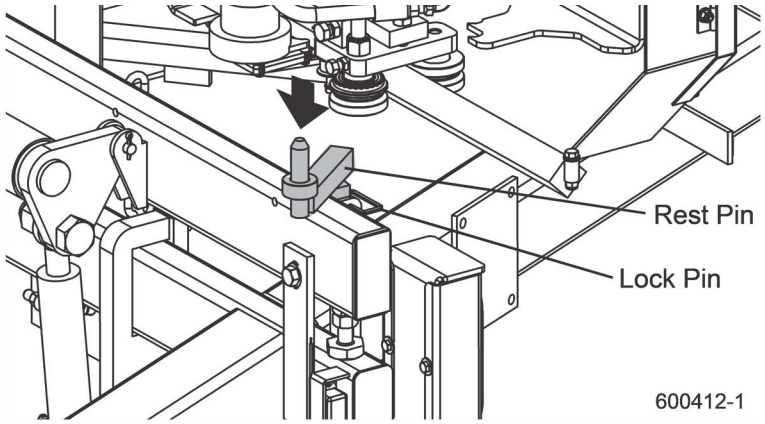


FIG. 4-27

8. Continue lowering the head 3/4" (19mm) until it contacts the stop block at the bottom of the mast.

CAUTION! It is important that the lower stop bolt is properly adjusted to secure the carriage on the track rail. Failure to properly adjust the stop bolt can cause saw head damage, especially during mill transportation.

9. If necessary, adjust the stop located at the bottom of the mast so the saw head contacts the stop after it is lowered 3/4" (19mm) past where it contacts the rest pin.

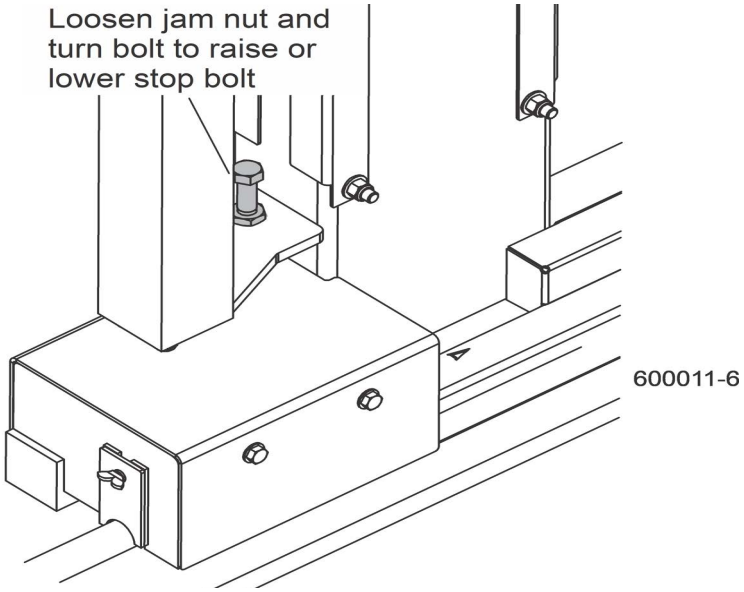


FIG. 4-28

10. Disconnect the cable from the back of the control box.

11. Remove the locking pin holding the control box to the stand. Lift the control box from the stand and place on the travel bracket on the sawmill frame. Use the locking pin to secure the control box to the travel bracket. Place the stand on the second travel bracket and secure with the remaining locking pin.

12. Hook the carriage safety chain located at the bottom of the carriage to the bracket at the bottom of the mast.

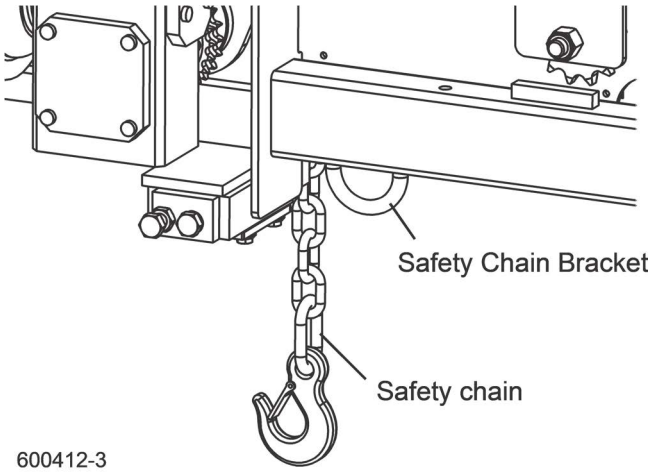


FIG. 4-29

CAUTION! Check to be sure the saw head safety chain is secured before towing the sawmill. Failure to properly secure the saw head can result in severe machine damage. Be sure the blade housing and pulley covers are in place and secure. Use the safety retainer pin and cable to fasten blade housing covers.

13. Remove all loose objects from the bed of the mill. Store the outrigger jack handle in the bracket provided on the front/loading-side outrigger guide.

14. Place the board return table in the towing position on the sawmill. Reverse the setup procedure described in Section 3.2 Portable Sawmill Setup. Be sure to secure the table to the frame with the retaining pins.

WARNING! Secure the board return table to the sawmill bed before towing. Failure to do so may result in damage to the equipment and/or serious injury.

15. Place both fenders in the slots located behind the trailer tires and secure with rubber straps. Raise all but the very front outrigger (See FAO manual).

See the trailer operator's manual for specific information regarding hitch operation and towing the sawmill.

SECTION 5 MAINTENANCE

This section lists the maintenance procedures that need to be performed.

See the *Maintenance Chart* located after this section for a complete list of maintenance procedures and intervals.

Keep a log of machine maintenance by recording in the machine hours and the date you perform each procedure.

Be sure to refer to option and engine manuals for other maintenance procedures.

5.1 Wear Life.

This chart lists estimated life expectancy of common replacement parts if proper maintenance and operation procedures are followed. Due to the many variables which exist during sawmill operation, actual part life may vary significantly. This information is provided so that you may plan ahead in ordering replacement parts

Part Description	Estimated Life
Up/Down Motor Brushes (DC Only)	1000 hours
B72.5 Blade Wheel Belts	400 hours
Up/Down Motor	2000 hours
Hydraulic Pump Solenoid	750 hours
Power Feed Motor Brushes (DC Only)	750 hours
Up/Down Drum Switch (Except DCS)	1000 hours
Hydraulic Pump Motor Brushes (DC Only)	750 hours
Power Feed Drum Switch (Except DCS)	1200 hours
Power Feed Motor	1500 hours
Up/Down Belt	2000 hours
Drive Belt	1250 hours

TABLE 5-1

5.2 Blade Guides

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

Blade guide alignment is essential for optimal cutting performance, blade life, and safety. Failure to check and maintain proper blade guide alignment will result in stress cracks forming in the blade. These cracks will lead to premature blade breakage. If the blade breaks during operation and the blade has multiple stress cracks, the blade could shatter into several pieces and escape from the protective guards of the sawmill. Small blade pieces projected into the area around the sawmill creates a safety hazard for the operator and any bystanders surrounding the mill

1. Check the rollers for performance and wear every blade change.
2. Make sure the rollers are clean and spinning freely -- if not, replace them.
3. Replace any rollers which have worn smooth or have become cone shaped.

BLADE GUIDES EQUIPPED WITH OPTIONAL HIGH-PERFORMANCE ROLLER/BLOCKS ONLY:

4. Inspect the blocks at every blade change for damage or wear.
5. If the block housing is bent or damaged, replace the block assembly.
6. Replace the block assemblies before the blocks are worn to a point the blade may contact the lower step or housing.
7. Check the guide blocks with the provided shim or a feeler gauge **every 25 hours** of operation to ensure they are properly spaced (.008” - .010”) from the blade.

NOTE: As the blocks wear, the front inside corner will wear more than the body of the block. When the corner wears far enough, sawing performance will be affected even if the body of the block is adjusted properly to the blade. At this point, the block should be replaced. If you have access to the appropriate equipment, you can grind or mill the blocks to a new flat surface and reuse them. It is recommended you develop a routine schedule for replacing the blade guide blocks based on your sawing conditions and experience.

8. Loosen the clamp bolt and mounting bolt to adjust the top block down.
9. Turn the adjustment bolt clockwise.
10. Retighten the mounting bolt and clamp bolt.
11. To adjust the bottom block up, loosen the clamp bolt and mounting bolt.
12. Use the provided adjustment tool to turn the adjustment screw clockwise.
13. Retighten the mounting bolt and clamp bolt.

NOTICE The blocks should be parallel to the blade (see section: **Sawmill Alignment)** for instructions about checking and adjusting the assembly level with the blade.

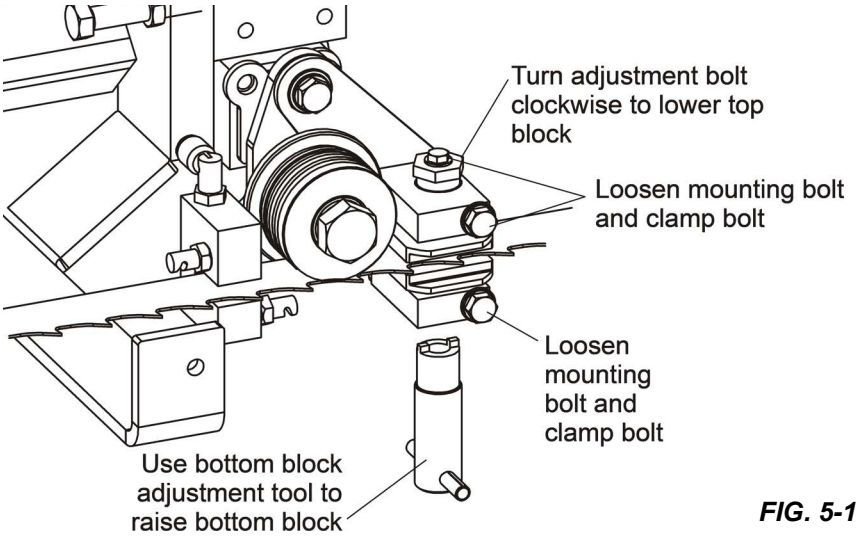


FIG. 5-1

Preventing sap buildup on the blade is critical when using the high-performance blade guide system. If the wood you are sawing leaves sap buildup using plain water in the blade lube system, use Wood-Mizer lube additive (4-Pak 60 oz. bottles part no. ADD-1).

14. Make sure the blade screw in the top center of the C-frame is 1/16" (1.5 mm) away from the blade; if not, loosen the nut and adjust the screw as necessary.
15. Check the screw **every 500 hours** of operation.

Failing to maintain this adjustment will lead to early blade breakage.

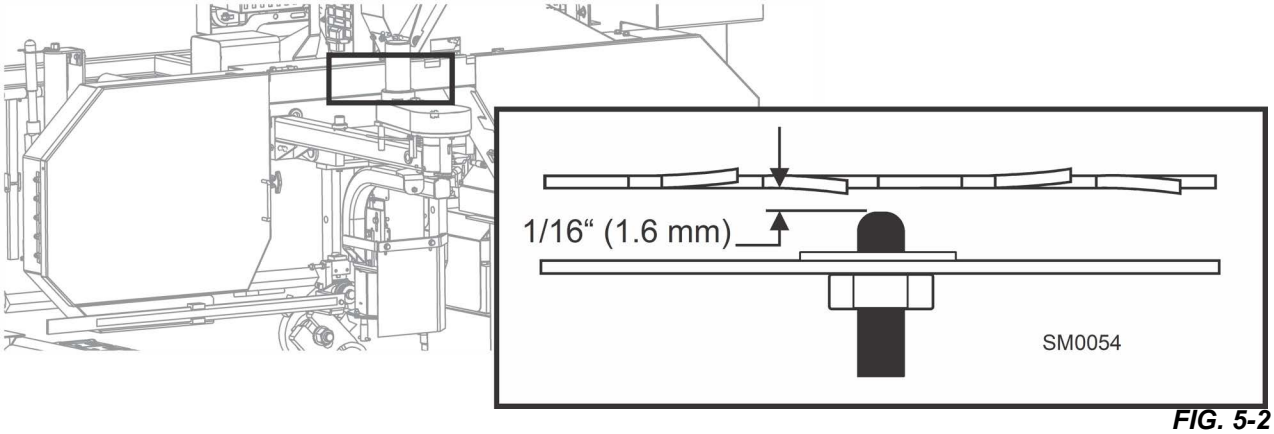


FIG. 5-2

5.3 Sawdust Removal

WARNING! Before performing service turn the key switch to the OFF (#0) position and remove the key.

Clean sawdust from all guards, vents, control boxes, or any area where sawdust may gather **after every shift**. Failure to do so **may result in fire**, causing death or serious injury.

Check the steel fingers inside the sawdust chute before operating the sawmill. The steel fingers have been designed to help prevent a broken blade or some other object from becoming a projectile and exiting the sawdust chute. Failure to have these fingers in place may result in serious injury.

Remove all sawdust and debris from around the velocity fuse valves **every 8 hours** of operation. The valves are located at the bottom of the log loader cylinders.

Remove sawdust buildup as necessary from the battery box lid and top rail cover.

CAUTION! Failure to remove sawdust buildup from the battery box lid and/or track rail cover could result in damage to these parts when the saw head is lowered to its lowest position.

Remove sawdust and debris from grounding block along the bed rail and mast **every 50 hours** of operation.

5.4 Carriage Track, Wiper, & Scraper

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

Properly maintaining the sawmill carriage track is critical in preventing corrosion that can cause pitting and scaling on the rail surfaces. Pitted and scaled surfaces can, in turn, cause rough cuts or jerky feed movement.

1. Clean track rails to remove any sawdust and sap buildup every eight hours of operation.

Use a light-grade sandpaper or emery cloth to sand off any rust or other adhering particles from the rails.

CAUTION! Keep track rails free of rust. Formation of rust on the track rail in the areas where the cam bearings roll can cause rapid deterioration of the track rail's surface.

Lubricate the rails by wiping them with Dexron III ATF transmission fluid. Lubrication will help protect the rails from corrosive elements such as acid rain and/or moisture from nearby bodies of saltwater (if applicable). This lubrication is essential to maintain the integrity of the track rails and track rollers and to achieve long service life.

2. Remove sawdust from the track roller housings and lubricate the felt track wiper every twenty-five hours of operation.

Remove the track roller housing covers and brush any sawdust buildup from the housings.

Clean and lubricate the felt track wipers. Unbolt the track covers, remove from the sawmill and remove any sawdust buildup. Soak the felt wiper with Dexron III transmission fluid.

CAUTION! Reinstall the track wiper so that it lightly touches the track rail. If the wiper presses too firmly against the rail, it can cause the power feed to bind.

3. Check the track scrapers as needed. Make sure the scrapers fit firmly against the rail. If a track scraper needs to be adjusted, loosen the screw, push the scraper downward until it fits firmly against the rail, and retighten the screw.

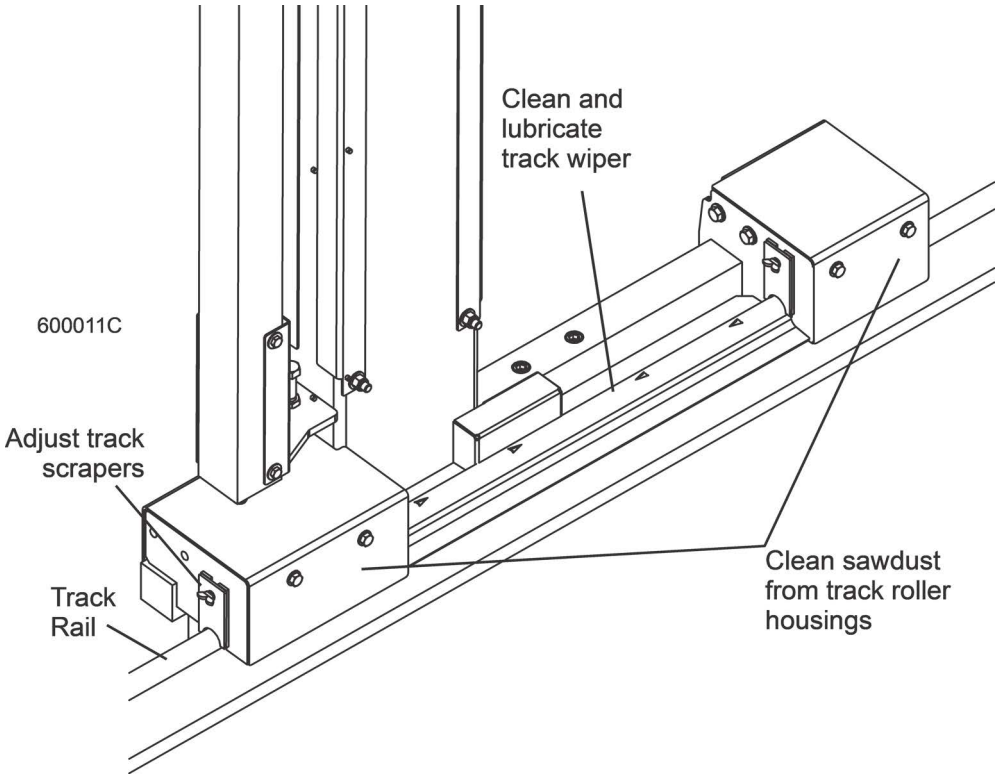


FIG. 5-3

5.5 Vertical Mast Rails

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

CAUTION! Never use grease on the mast rails as it will collect sawdust.

Clean the vertical mast rails **every 50 hours** of operation.

Verify gap between throat screw and vertical mast **every 50 hours.**

1. Tighten (4) throat screws until they slightly touch vertical mast.

   NOTE: Locate (2) upper throat screws on sawdust chute side and (2) lower throat screws on engine side.

2. Back throat screws out a 1/2 turn.
3. Tighten lock nuts on throat screws.

   NOTE: Brass tipped throat screw prevents contact with covers, protecting the transducer from damage and signal interference.

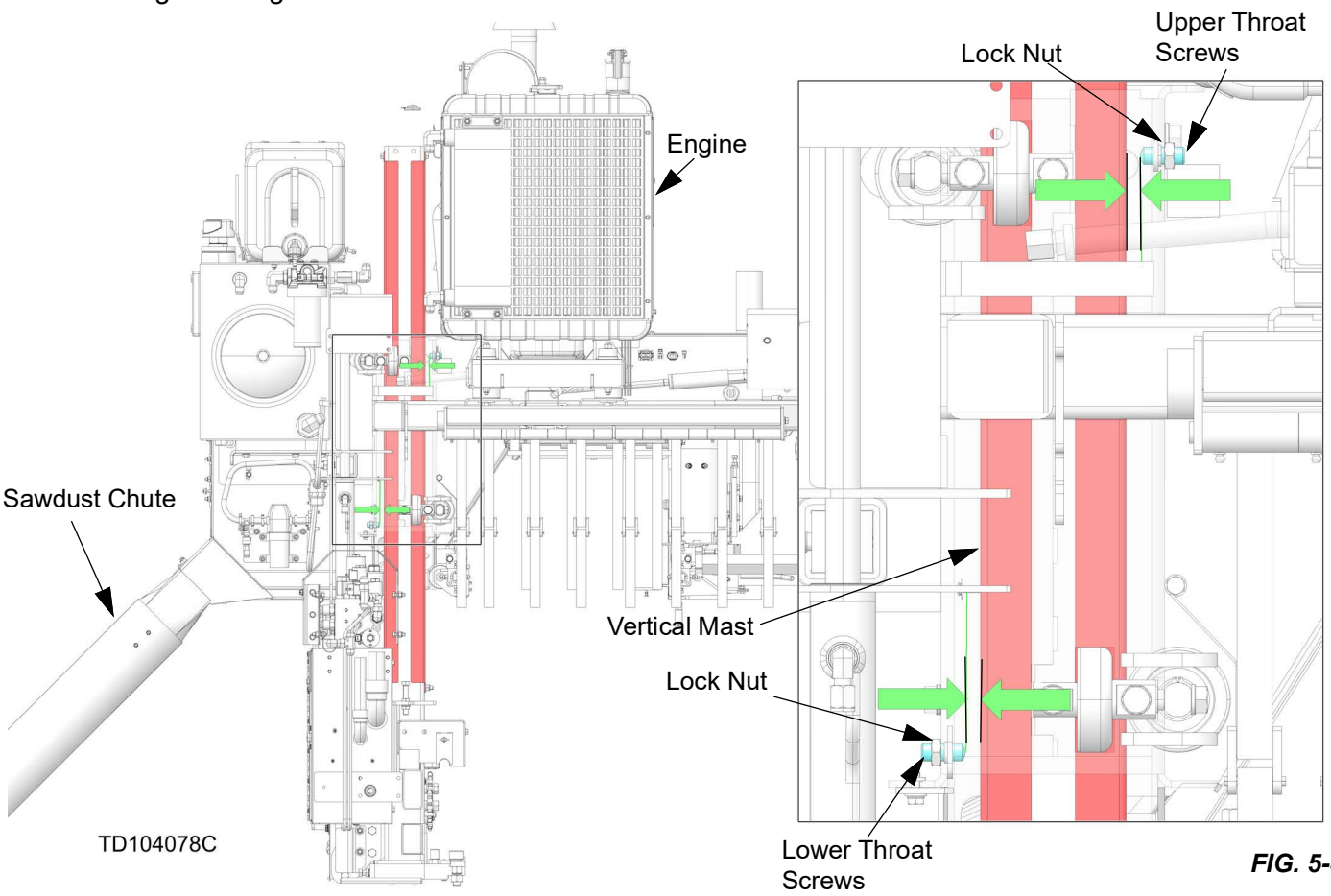


FIG. 5-4

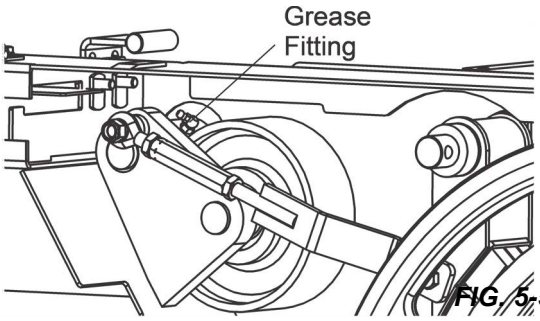
5.6 Miscellaneous

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

1. Oil all chains with Dexron III ATF **every 50 hours** of operation.

CAUTION! Do not use chain lube. It causes sawdust buildup in chain links.

2. Apply a thin film of a NLGI No. 2 grade lithium grease to the blade guide arm every 50 hours of operation to help prevent it from rusting.
3. Adjust the blade guide arm drive chain as necessary to prevent the arm from slipping. To adjust the chain, loosen the blade guide arm motor mounting plate bolts and slide the motor to take slack out of the chain.
4. Apply NLGI No. 2 grade lithium grease to the drive belt tensioner pivot every 50 hours of operation.
5. Grease the clamp mechanism, loading arm and side support pivots with a NLGI No. 2 grade lithium grease every 50 hours of operation.
6. Check the mill alignment every setup.
7. Remove sawdust and dirt from all safety warning decals; they must be readable.
8. Replace any damaged or unreadable decals immediately. Order decals from your Customer Service Representative.



600005-20B

FIG. 5-5

5.7 Blade Tensioner

WARNING! Before performing service turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

5.8 Blade Wheel Belts

WARNING! Before performing the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

1. Rotate the blade wheel belts **every 50 hours** and check them for wear.

   NOTE: Rotating the belts will provide longer belt life.

2. Replace belts as necessary.
3. Use only belts supplied by Wood-Mizer.

5.9 Drive Belt Adjustment

WARNING! For battery-powered equipment, disconnect the negative battery terminal cable. For AC-powered equipment, follow the lockout procedure provided in the safety section.

Before performing service turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

Do not adjust the engine drive belts or belt support bracket with the engine running.

.**CAUTION!** Do not over-tighten the drive belt. Damage to the engine may result.

See the table below for drive belt tension specifications for your model sawmill. Measure the belt tension with a gauge.
NOTE: Wood-Mizer offers a belt tension gauge (Part No. 016309) that will let you accurately measure the belt tension.

	New Belt Installation/New Sawmill Operation				Subsequent Adjustment		
Engine/ Motor	**Deflection Inches (mm)**	**Installation Force lbs. (kg)**	**Check After First**	**Acceptable Force lbs. (kg)**	**Then Check Every**	**Deflection Inches (mm)**	**Force lbs. (kg)**
ALL	3/8” (9.5mm)	14 lbs. (6.35kg)	20 hrs	14 lbs. (6.35kg)	50 hrs	3/8” (9.5mm)	14 lbs. (6.35kg)

TABLE 5-2

Adjust belt tension

1. Turn the key switch to the accessory (#3) position. Engage the drive belt with the blade switch on the control panel.
2. Turn the key switch to the off (#0) position and remove the key. Check the belt tension as described above.
3. Loosen the jam nut and turn the adjustment tube until the belt is properly tensioned.
4. Tighten the jam nut.
5. **D55 Only:** Adjust the enhancement rods approx. 1/4” away from the belt.
6. Replace the key and turn the key switch to the accessory (#3) position.
7. Turn the blade switch off and back on and recheck the belt tension.
8. Repeat adjustments as necessary until proper belt tension is achieved when the belt is engaged.
9. **DC models only:** After making adjustments to the drive belt, always check the brake adjustment (*See Section 5.10*).

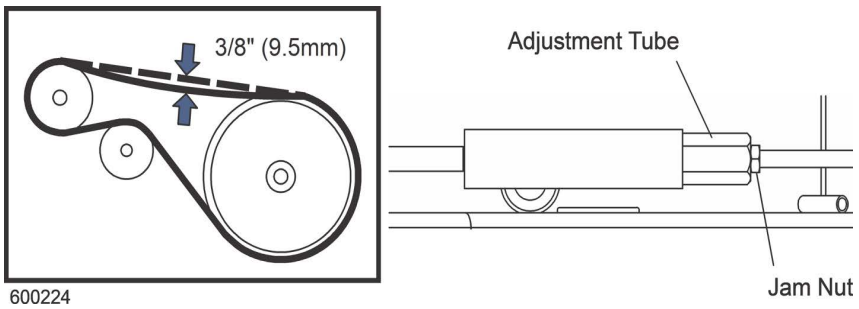


FIG. 5-6

Periodically check the drive belt for wear and replace any damaged or worn belts **as needed**.

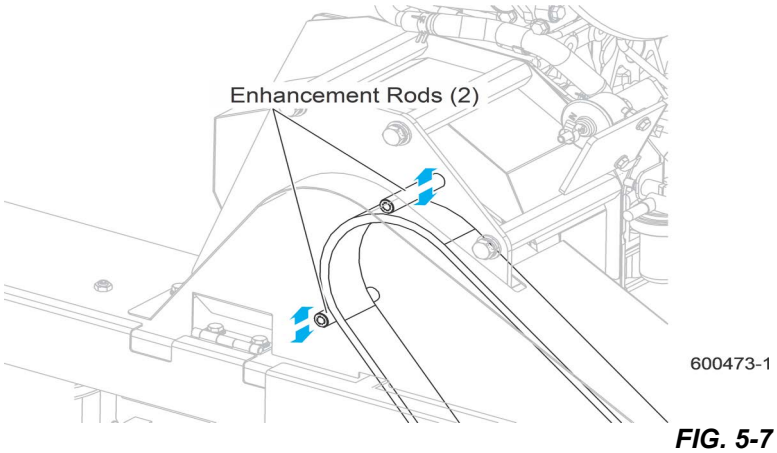


FIG. 5-7

Measure the belt tension with a gauge **every 50 hours** of operation..

1. Tension the drive belt by engaging the clutch.
2. Use a tension gauge to measure the drive belt tension.

   NOTE: Wood-Mizer offers a belt tension gauge (Part No. 016309) that accurately measures the belt tension.
3. Zero out the pounds indicator by sliding the small O-ring against the yellow flange.
4. Open the belt cover.
5. Lay a straight edge across the two pulleys.
6. Set the large O-ring to the measurement on the chart.
7. Center the gauge in the middle between the two pulleys.
8. Press down on the rubber boot while the bottom of the gauge is against the drive belt.
9. Stop pressing when the large O-ring meets the straight edge.
10. Read the pounds indicated by the small O-ring.

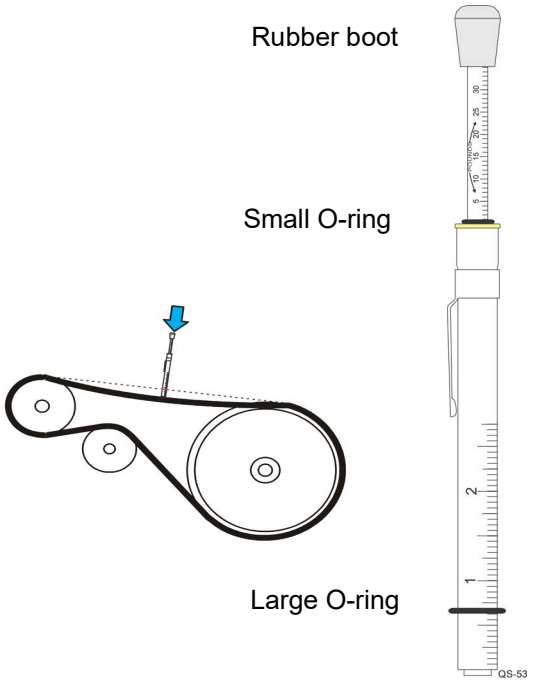
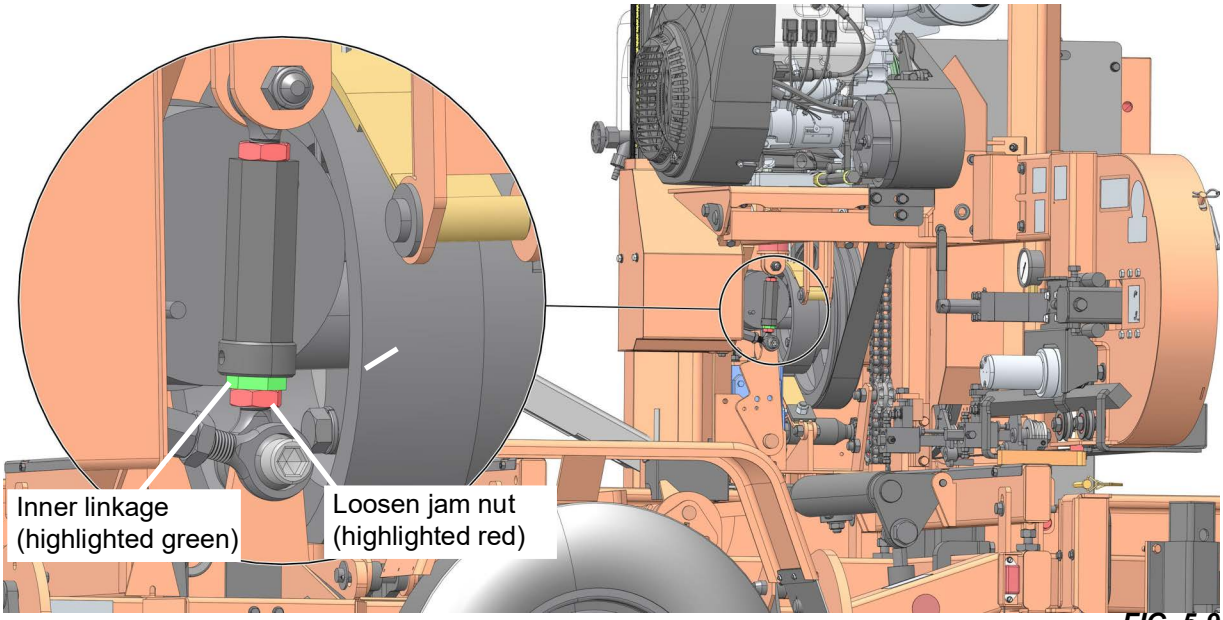


FIG. 5-8

ADJUSTING THE DRIVE BELT

1. Remove the two belt covers located underneath the engine.
2. Loosen the jam nut at the bottom of the turnbuckle.
3. Turn the hex on the inner link rod clockwise (as viewed from the bottom) to tighten the belt, counterclockwise to loosen the belt.
4. If you reach the maximum adjustment using the bottom jam nut/inner link rod, adjust the linkage by loosening the top jam nut and turning the turnbuckle clockwise as viewed from the top.



G38 ENGINE SHOWN

FIG. 5-9

5. Check all belts for wear; replace any damaged or worn belts **as needed.**
6. **Gas/Diesel Engines Only**: After tensioning the drive belt, check throttle cable tension and adjust if necessary.

The throttle cable should be tensioned just enough so that the engine revs as soon as the autoclutch is engaged. The throttle linkage should NOT affect engine RPM while the autoclutch handle is disengaged.

NOTE: A properly adjusted throttle will extend the cable spring 1/4" to 3/8" (6.4 - 9.5 mm) when running and have a slight amount of slack in the cable when idling. Check the drive belt support after adjusting drive belt tension.

Adjust the drive belt support (Excludes E25, E30, D55)

The drive belt support is designed to extend belt life. The bracket should be adjusted to NOT touch the drive belt when the clutch handle is engaged (down position), AND to hold the drive belt away from the engine pulley when the clutch handle is disengaged (up position).

Adjust the drive belt support as needed. Depending on your engine model, the drive belt support may be located near the drive wheel or drive pulley.

1. Ensure the power is off.
2. Loosen the adjustment bolts.
3. Position the bracket so that the rod is close to, but does not touch, the drive belt with the clutch handle engaged. This is approximately 1/8-1/16” (3-1.5mm).
4. Retighten the adjustment bolts 25-27 pound feet (34-37 newton meters).

5.10 Brake Adjustment (DC Only)

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

Check the brake pads for wear every 200 hours of operation. Replace if damaged or worn.

Also check and adjust the brake pads after each drive belt adjustment or if the blade does not stop quickly. Adjust the brake pads if the drive belt jumps from the drive pulley when the autoclutch is disengaged.

The brake should be adjusted so the blade stops no more than 7 seconds after turning the blade switch off. Loosen the jam nuts around the adjustment turnbuckle and turn the turnbuckle to adjust the brake. Retighten the jam nuts.

Multiple adjustments of the brake will affect engine RPM at idle. If you notice any change in the idle of the engine after adjusting the brake, check the RPM and adjust the throttle cable if necessary to allow the throttle plate to rest on the idle stop screw (See Engine manual).

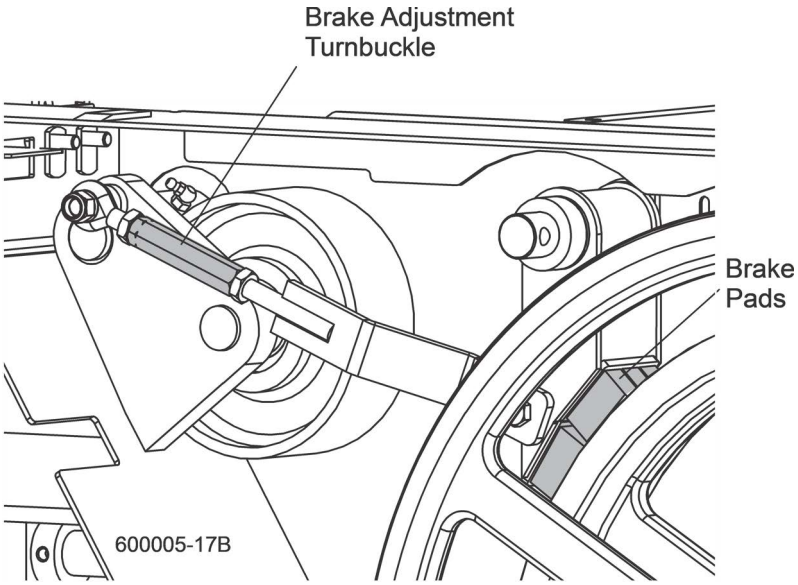


FIG. 5-9

5.11 Autoclutch

TENSION BELT

Tighten the clutch belt as necessary to prevent slippage.

1. Remove the two cover bolts and washers and remove the cover.
2. Loosen the clutch motor mounting bolts and slide the motor up to tighten the belt.
3. Tighten the belt to 1/16” deflection with 1/4 lb. deflection force.

Wood-Mizer offers a belt tension gauge (Part No. 016309) that will let you accurately measure the belt tension.

4. Inspect the belt for wear or cracks and replace as necessary.

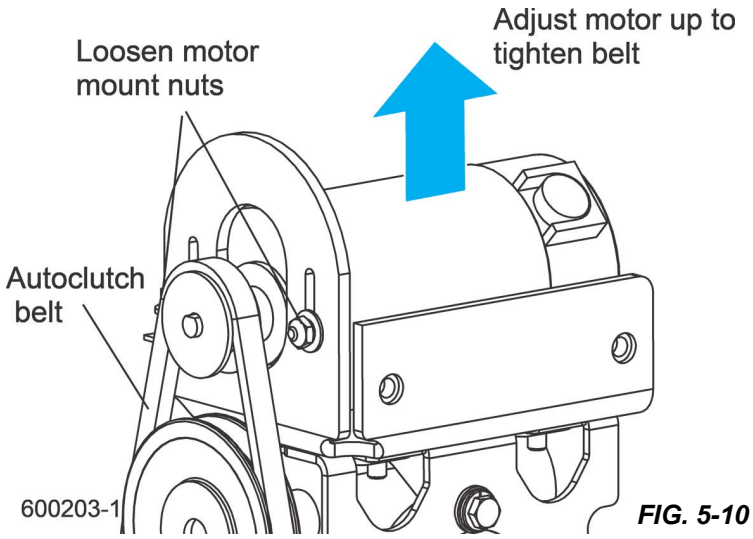


FIG. 5-10

LUBRICATE GEAR BOX

1. Check the clutch gear box oil level.
2. Remove the level plug at the rear of the gear box.

The oil level should be right at the plug hole.

3. Drain and refill the gearbox **after the first 100 hours** of sawmill operation.
4. Repeat **every 5000 hours** or once a year, whichever comes first.
5. Lubricate the autoclutch linkage **every 100 hours** of operation.
6. Apply a NLGI No. 2 grade lithium grease to the fitting at each end of the clutch linkage connected to the gear box.

5.12 Hydraulic System

WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. For AC-powered equipment, follow the lockout procedure provided in the safety section (*See Section 2.2*). Failure to do so may result in injury and/or electrical system damage.

1. Check the hydraulic fluid level every fifty hours of operation. Add fluid as necessary. The level in the hydraulic pump should be 3/4" (19mm) from the top with all cylinders collapsed.

   If humidity is a problem or the mill is used outside in humid weather, drain and replace two quarts (.95 liters) of fluid every six months. This will drain any accumulated water and help prevent pump failure due to water ingestion. It also will prevent excessive fluid wear and allow the fluid to maintain its hot end performance. If humidity is not a problem, drain and replace one gallon (3.8 liters) of fluid every year to prevent fluid wear.

   If you are operating in temperatures -20° to 100° F (-29° to 38° C), use an all-weather hydraulic fluid such as Conoco MV32. For alternate fluids and/or other temperature ranges, refer to the chart below. Operating above the recommended temperature range of a fluid could result in excessive pump wear. Operating below the recommended temperature range could result in reduced hydraulic cylinder speed. To change fluid types, replace one gallon of the current fluid with one gallon of the alternate fluid.

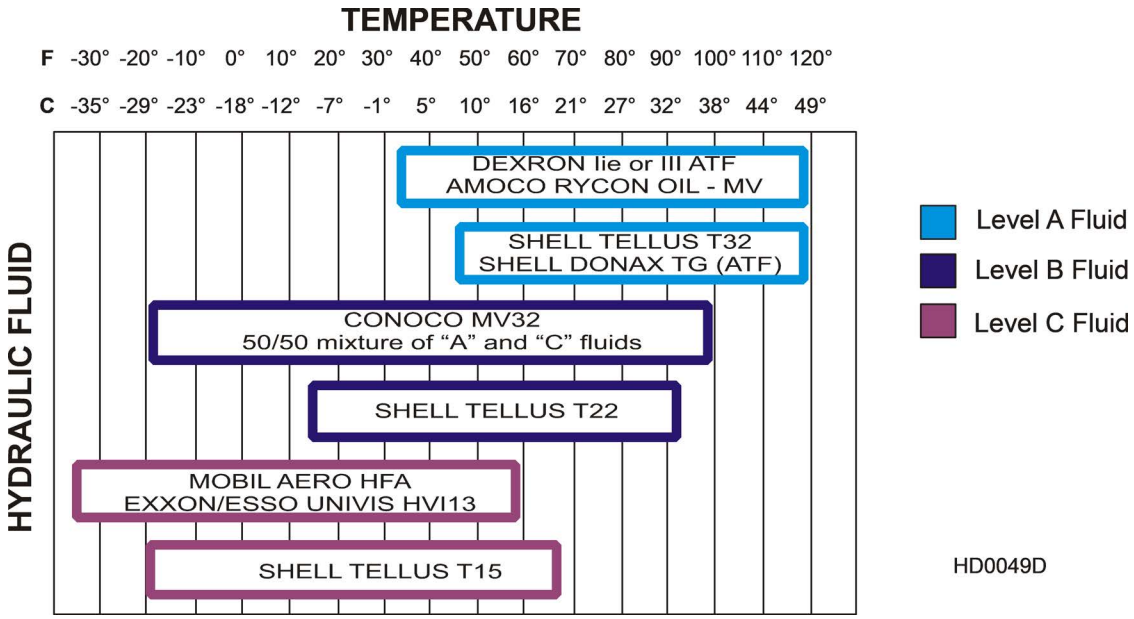


FIG. 5-11

2. Replace the hydraulic system cartridge filter every 500 hours of operation.
3. **DC Only:** Inspect the hydraulic pump motor brushes every 750 hours of operation. Remove brush dust and replace the brushes if they worn to a length of 1/4" (6mm) or shorter.

CAUTION! Do not operate the hydraulic system if the pump motor brushes are worn shorter than 1/4" (6mm). Damage to the pump motor may result.

4. Periodically check all hydraulic lines and fitting as needed. Replace as necessary.

5.13 Up/Down System

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. For AC-powered equipment, follow the lockout procedure provided in the safety section (*See Section 2.2*). Failure to do so may result in injury and/or electrical system damage.

1. Adjust the up/down chain tension as needed. Measure chain tension with the head all the way to the top of the vertical mast. Secure the head with a chain at the top. Find the chain adjusting bolt at the bottom of the mast. Use the adjustment nut to adjust the bolt until the center of the chain can be deflected 3/4” (1.9cm) forward with a 5 lb. (2.3 Kg) deflection force.

WARNING! Always secure the saw head with a 5/16" chain with at least 1900 lbs. working load capacity before adjusting the up/down chain. The saw head may fall, causing severe injury or death.

CAUTION! Do not over-tension the chain. Over-tensioning the chain may lead to early failure of the gear reducer.

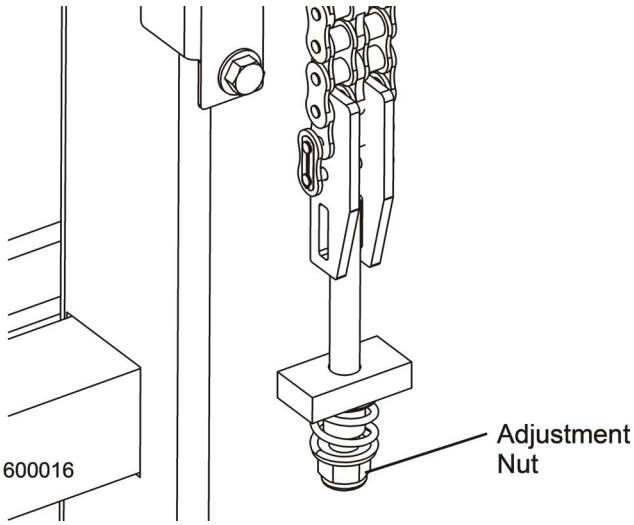


FIG. 5-12

2. The up/down motor features a spring-loaded belt design. Belt tension is automatically maintained and requires no adjustment. Replace the belt when adequate belt tension can no longer be obtained.

WARNING! Always secure the saw head with a 5/16" chain with at least 1900 lbs. working load capacity before removing the up/down motor belt. The saw head may fall, causing severe injury or death.

Periodically check the belt for wear. Replace any damaged or worn belts as needed.

3. Check the up/down gearbox oil level. Add a synthetic gear oil such as Mobil Glygoyle 460 as needed.

Drain and refill the gearbox with 40 (1.2L) ounces of oil after every 5000 hours of sawmill operation or every year, whichever comes first.

Wood-Mizer offers replacement gear oil in 8 ounce (0.24L) bottles.

4. Inspect the up/down motor brushes every 750 hours of operation. Remove brush dust and replace the brushes if they worn to a length of 5/8” (16mm) or shorter.

CAUTION! Do not operate the up/down system if the motor brushes are worn shorter than 5/8” (16mm). Damage to the up/down motor may result.

The up/down system is equipped with a gas spring assist mechanism to provide improved speed and performance. The saw head must be secured and tension released from the assist assembly before performing any maintenance to assist components.

WARNING! Always secure the saw head with a 5/16" (8mm) chain with at least 1900 lbs. (860Kg) working load capacity before servicing the up/down assist. The saw head may fall, causing severe injury or death.

WARNING! Release pressure from the up/down assist prior to performing any service to the assembly. Failure to do so may result in the assembly flying apart, causing injury or damage to the equipment.

1. Locate the four upper up/down assist mounting bolts. Remove the two lower set of mounting bolts.

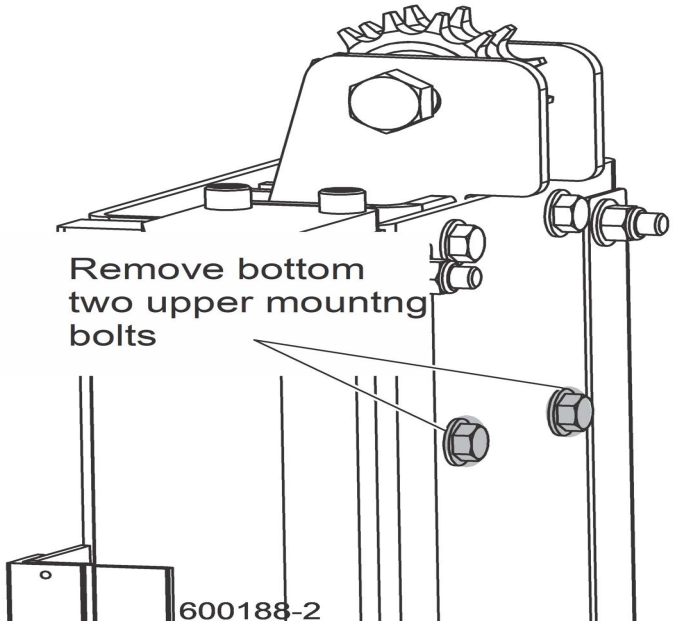


FIG. 5-12

2. Raise the saw head all the way to the top of the mast and secure with a chain.
3. Locate the up/down assist tension assembly.

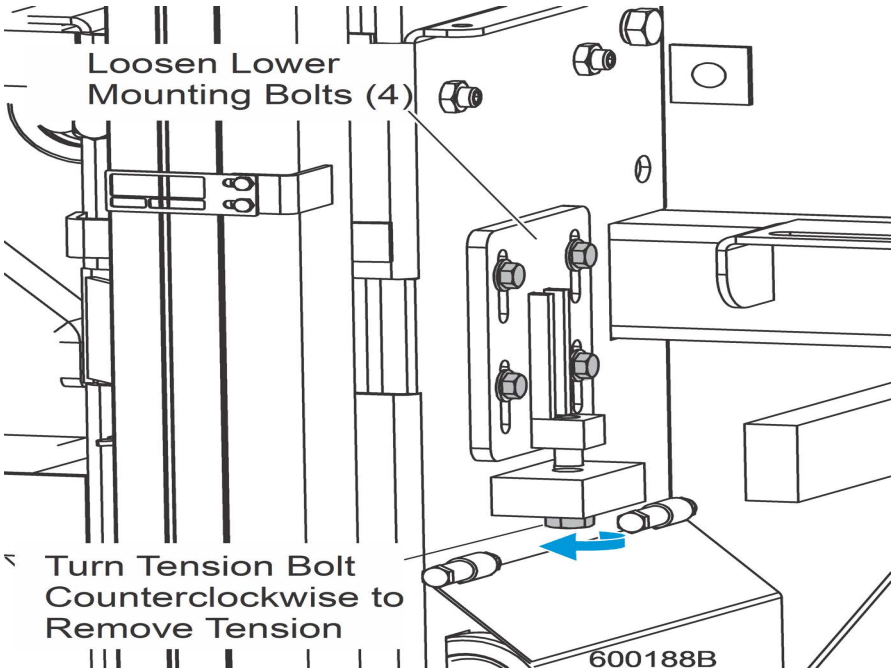


FIG. 5-12

4. Loosen (do NOT remove) the four lower mounting bolts to allow the bracket to move along the slotted mounting holes.
5. Turn the tension bolt counterclockwise to remove tension from the up/down system. Turn the bolt until it disengages from the mounting plate assembly.
6. Remove the four lower mounting bolts and lift the mounting plate to access the up/down chain. Disassemble the master link securing the chain to the saw head.

Secure the chain at the top of the assist assembly to prevent it from falling down into the tube.

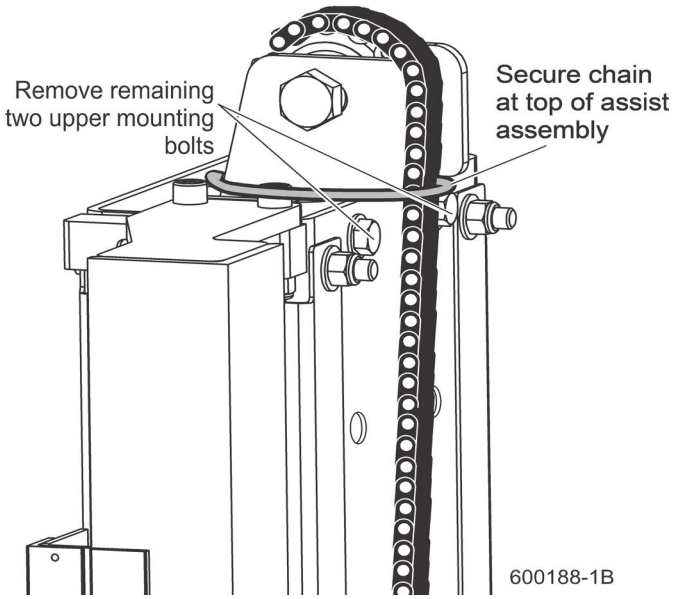


FIG. 5-12

7. Remove the two remaining upper mounting bolts at the top of the assist assembly and lift the assembly from the mast tube.

NOTE: The assist assembly weighs approximately 70 lbs (32Kg). It is recommended two people lift the assembly from the mast. A hoist or some other mechanical method may also be used.

8. Once the assist assembly is removed, components may easily be disassembled and serviced as needed. Do not disassemble the gas spring cylinders.

WARNING! The gas spring cylinders are pressurized. Disassembly of cylinder may result in injury or damage to the cylinder.

9. When service is complete, reinstall the assist assembly in the reverse order of the disassembly procedure. Reattach the chain with the master link. Replace the lower mounting bracket and bolts (do not tighten bolts yet). Tighten the tension bolt until the end of the bolt is flush with the top of the threaded block of the mounting plate. Tighten the mounting bolts.

5.14 Power Feed

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. For AC-powered equipment, follow the lockout procedure provided in the safety section (*See Section 2.2*). Failure to do so may result in injury and/or electrical system damage.

1. Adjust the power feed chain as needed. Measure the power feed chain tension with the saw head all the way toward

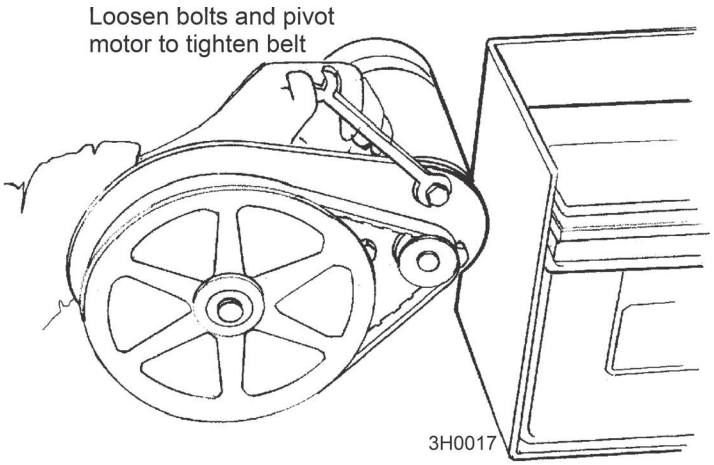


FIG. 5-13

the rear of the mill. Use the adjustment nut on the feed tensioner at the front of the mill to tighten or loosen the power feed chain. Adjust the chain until it measures 6.5 inches (16.5 cm) from the top of the top rail at its lowest point.

CAUTION! Do not overtighten the feed chain. Damage to the power feed motor may result.

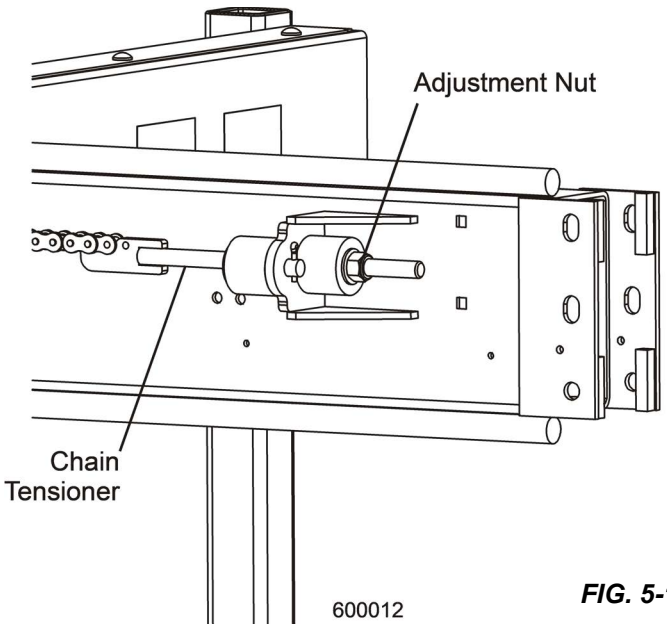


FIG. 5-14

Refer to the diagram for power feed chain routing instructions.

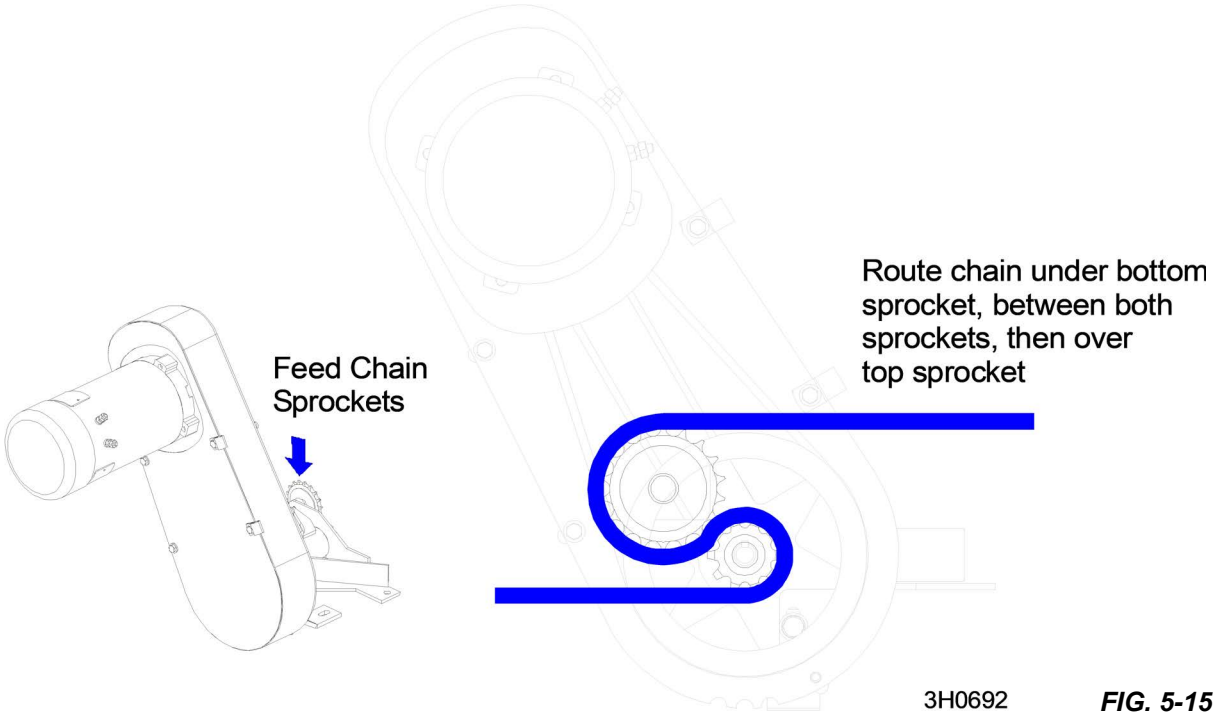


FIG. 5-15

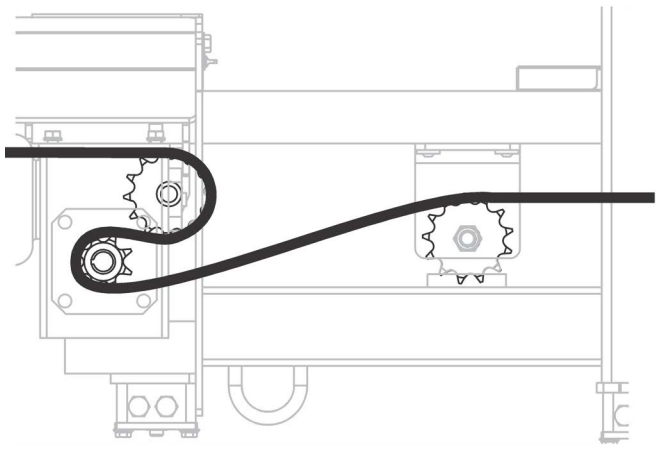


FIG. 5-16

2. Inspect the power feed motor brushes every 750 hours of operation. Remove brush dust and replace the brushes if they worn to a length of 5/8” (16mm) or shorter.

CAUTION! Do not operate the power feed system if the feed motor brushes are worn shorter than 5/8” (16mm). Damage to the feed motor may result.

3. Check the power feed gearbox oil level. Add a synthetic gear oil such as Mobil Glygoyle 460 as needed.

Drain and refill the gearbox with 12 - 15 ounces (0.35 - 0.44L) of oil after every 5000 hours of sawmill operation or every 2 years, whichever comes first.

Wood-Mizer offers replacement gear oil in 8 ounce (0.24L) bottles.

5.15 Charging the Battery

DANGER! Batteries expel explosive gases. Keep sparks, flames, burning cigarettes, or other ignition sources away at all times. Always wear safety goggles and a face shield when working near batteries. Failure to do so will cause serious injury.

WARNING! Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Charge the battery in a well ventilated area. Do not attempt to charge a frozen battery.

Use extreme care to avoid spilling or splashing electrolyte (which is dilute sulfuric acid) as it can destroy clothing and burn the skin.

EMERGENCY TREATMENT FOR CONTACT WITH BATTERY COMPONENTS (LEAD/SULFURIC ACID) *per SDS (Safety Data Sheet)*:

EYE CONTACT	**Sulfuric Acid and Lead**: Flush eyes immediately with large amounts of water for at least 15 minutes while lifting lids. Seek immediate medical attention if eyes have been exposed directly to acid.
SKIN CONTACT	**Sulfuric Acid**: Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes. **Lead:** Wash immediately with soap and water.
INGESTION	**Sulfuric Acid:** Administer large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.
INHALATION	**Sulfuric Acid**: Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician. **Lead:** Remove from exposure, gargle, wash nose and lips; consult physician.

If electrolyte is spilled or splashed on any surface of the machine, it should be neutralized and rinsed with clean water.

CAUTION! Do not overcharge the battery. Overcharging may reduce the overall service life of the battery.

Be sure the battery is fully charged before transporting the sawmill. If the battery is not fully charged, excessive vibration could reduce the overall service life of the battery.

1. Raise the saw head to access the battery box.
2. Turn the key to the OFF (#0) position and remove the key.
3. Remove the battery box lid.
4. Clean the battery terminals if necessary.
5. Connect the positive charger/jumper cable directly to the positive battery terminal.
6. Connect the negative charger/jumper cable to a grounded metal surface.
7. Follow the instructions supplied with your specific battery charger.

NOTICE Do not overcharge the battery, especially when using a high-rate or “boost” charger (40 amps or higher). These are intended to quickly charge a good battery that is discharged. They are not intended for unattended or long-term charging.

8. After the battery is completely recharged, remove the negative charger/jumper cable from ground.
9. Remove the positive charger/jumper cable from the battery.
10. Replace the battery box lid.

5.16 Festoon Replacement

Follow the steps below to replace the festoon assembly (Kit #076080) on the LT70 DCS sawmills equipped with the previous version of the festoon:

1. Use the sawmill controls to move the saw carriage so the hydraulic power strip (if applicable) is not engaged and raise the saw head to gain access to the battery box lid.
2. Turn the key switch to the OFF (#0) position and remove the key.
3. Remove the battery box cover and disconnect the negative battery terminal.

WARNING! Disconnect the negative battery terminal cable before performing any service to the 12-volt electrical system. Failure to do so may cause injury or electrical system damage.

Use the eye bolt at the top of the rear feed stop post to loosen the festoon guide cable. Disconnect the guide cable from the

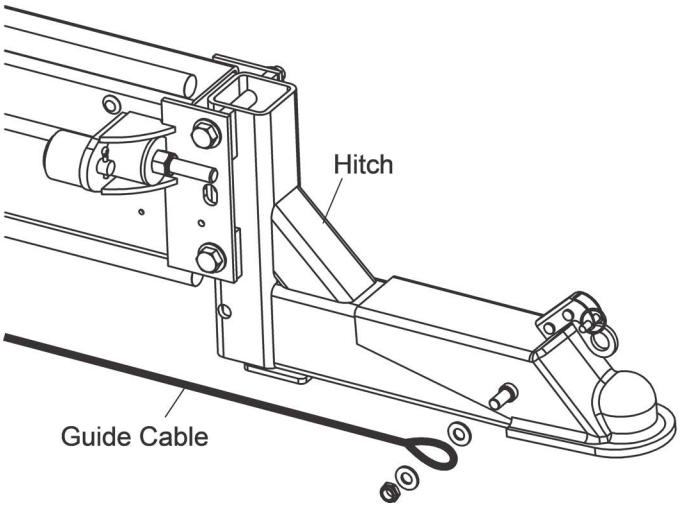


FIG. 5-17

hitch.

Replace the exiting pulley and the bushing located at the upper pulley mount with the provided pulley. Use the provided hex

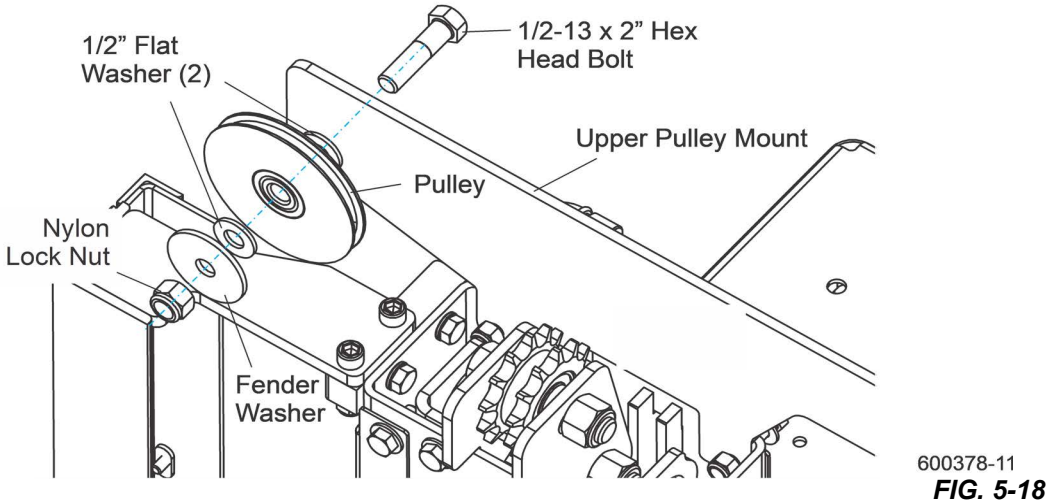


FIG. 5-18

head bolt, the provided fender washer, the existing washers and the hex nylon lock nut to secure the pulley to the upper pulley mount as shown below.

4. Unlock and open the distribution box.

5. Replace the existing pulleys located at the back of the distribution box with the three provided pulleys. Route the guide cable on the pulleys and install the pulley guard plate. Use the provided 1/2-13 x 2" hex head bolts to secure the pulleys and the pulley guard plate in place.

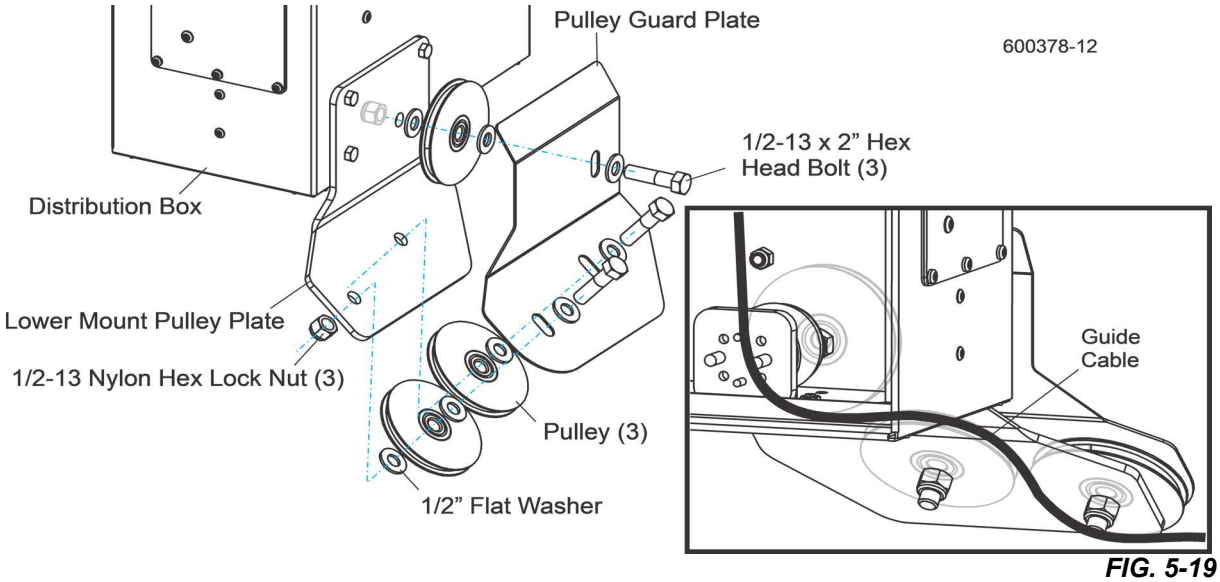


FIG. 5-19

6. Close and lock the distribution box.

7. Reinstall the guide cable to the hitch. Use the eye bolt at the top of the rear feed stop post to tension the guide cable as necessary.

8. Replace the existing cable trolleys with the provided cable trolleys. **IMPORTANT:** Replace the cable trolleys one at a time maintaining the natural coil of the wire. It may be necessary to reorient the cable clamp so the smaller cable hole is oriented down as shown below.

WARNING! Always follow the proper installation procedure as described above. Failure to do so may result in possible damage to the machine.

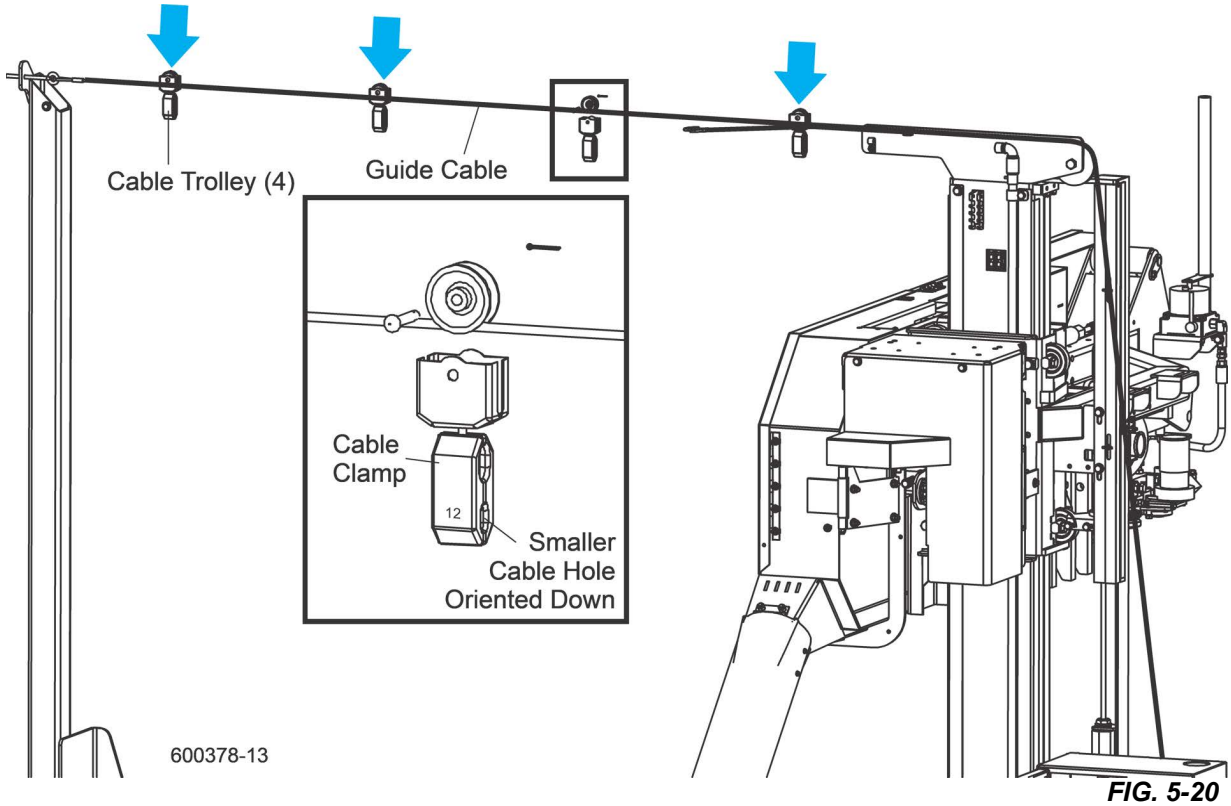


FIG. 5-20

5.17 Maintenance Chart

MAINTENANCE LOG (Check *Engine* And *Option Manuals* for additional maintenance procedures)	MANUAL REFERENCE	MAINTENANCE INTERVAL
Clean sawdust from hydraulic loader fuses , battery box lid & track cover	*See Section 5.3*	8 hours
Clean and lubricate top/bottom track	*See Section 5.4*	8 hours
Check blade guide Block/roller wear	*See Section 5.2*	8 hours Every blade change
Remove excess sawdust from blade wheel housings and sawdust chute	*See Section 5.3*	8 hours Every blade change
Inspect fingers inside sawdust chute	*See Section 5.3*	8 hours Every blade change
Remove sawdust from upper track roller housings	*See Section 5.4*	25 hours
Check Blade Guide Block Spacing	*See Section 5.2*	25 Hours
Clean and lubricate upper track wiper	*See Section 5.4*	25 hours
Clean & lube mast rails	*See Section 5.5*	50 hours
Lubricate drum switches (Except DCS)	*See Section 5.6*	50 hours
Grease pivot points and bearings/oil chains	*See Section 5.6*	50 hours
Rotate drive/idle blade wheel belts/check for wear	*See Section 5.8*	50 hours
Inspect hydraulic lines & fittings	*See Section 5.12*	50 hours
Check belt tensions	*See Section 5.9* *See Section 5.13*	50 hours
Check hydraulic fluid level	*See Section 5.12*	50 hours
Check feed & up/down chain tensions	*See Section 5.13* *See Section 5.14*	50 hours
Check up/down & power feed gear box fluid levels	*See Section 5.13See Section 5.14*	50 hours
Check brake pads	*See Section 5.10*	200 hours
Re-check belt tensions	*See Section 5.9* *See Section 5.13*	200 hours
Check blade throat screw	*See Section 5.2*	500 hours
Replace hydraulic system filter	*See Section 5.12*	500 hours
Inspect hydraulic pump, power feed and up/down motor brushes	*See Section 5.12* *See Section 5.13* *See Section 5.14*	750 hours
Grease the Fine Adjust Outriggers (FAOs) every 200 hours of operation or once a month, whichever comes first.	*See Section 5.18*	200 hours

SECTION 6 TROUBLESHOOTING GUIDE

6.1 Sawing Problems

WARNING! Before performing service near moving parts such as blades, pulleys, motors, belts and chains, first turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

PROBLEM	CAUSE	SOLUTION
Blades Dull Quickly	Dirty logs	Clean or debark logs, especially on entry side of the cut
	When grinding teeth, heating too much and causing teeth to soften	Grind just enough metal to restore sharpness to the teeth. Use water/coolant while sharpening blade
	Poor sharpening techniques	Make sure the tip is being sharpened completely (See Sharpener Manual)
Blades Break Prematurely	Poor sharpening techniques	See Sharpener Manual
	Tension too tight	Tension blade to recommended specifications
Blade Does Not Track Right on Drive Wheel	Cant adjustment is incorrect	Readjust
Drive Belts Wear Prematurely or Jump	Engine/motor and drive pulleys out of alignment	Align pulleys *See Section 6.4*.
Boards Thick Or Thin On Ends Or Middle Of Board.	Stress in log which causes log to not lay flat on the bed.	After log has been squared, take equal cuts off opposing sides. Take a board off the top. Turn the log 180 degrees. Take a board off. Repeat, keeping the heart in the middle of the cant, and making it your last cut.
	Set in teeth.	Resharpen and reset blade.
	Bed rails misaligned.	Realign sawmill.
Height Adjustment Jumps or Stutters When Moving Up or Down.	Up/down chain improperly adjusted.	Adjust up/down chain.
	Up/down belt loose.	Replace belt.
Lumber Is Not Square	Vertical side supports not square to bed	Adjust side supports.
	Blade not parallel to bed rails	Adjust bed rails parallel to blade.
	Sawdust or bark between cant and bed rails	Remove particles
	Tooth set problems	Resharpen and reset blade
Sawdust Builds Up On Track	Excessive oiling	Do not oil track
	Track wipers worn	Adjust wipers to firmly contact track
	Track is sticky	Clean track with solvent and apply silicone spray
Wavy Cuts	Excessive feed	Slow feed rate

PROBLEM	CAUSE	SOLUTION
	Improperly sharpened blade (This will be the problem 99% of the time!)	Resharpen blade (See Sharpener Manual - read entire manual!)
	Blade guides improperly adjusted	Adjust blade guides.
	Sap buildup on blade	Use Water Lube.
	Tooth set problem	Resharpen and reset blade

6.2 Hydraulic Problems

WARNING! Disconnect and lockout power before performing any service to the electrical system. For battery-powered equipment, disconnect the negative battery terminal cable. For AC-powered equipment, follow the lockout procedure provided in the safety section (see section: **Electrical Lockout Procedures**). Failure to do so may result in injury and/or electrical system damage.

Before performing service turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

PROBLEM	CAUSE	SOLUTION
Any Hydraulic Handle Can Be Actuated, But No Response From The Pump.	Carriage not positioned properly to provide power to the pump	Make sure carriage contact bracket is adjusted far enough forward for battery positive contact to touch 6ft. strip on main tube. Check contact and strip for tarnish or loose wires. Clean as necessary
	Poor ground connection	Check ground connection between pump and saw frame and between battery negative contact and lower rail. Check contact and rail for tarnish or loose wires. Clean as necessary
	Blown fuse	Replace
	Low or dead battery	Test battery amperage capability (such as low battery charge, low alternator output, defective voltage regulator, bad battery cell, battery age deterioration, etc.). Replace or recharge as necessary
	Poor cable connection	Check cable connection and make sure that battery terminals are in good condition (not corroded)
	Defective solenoid (may be indicated by solenoid clicking) See Monarch manual for troubleshooting solenoid	After checking all other possibilities for low voltage to solenoid, check solenoid. Tapping on solenoid may fix temporarily. Replace solenoid if necessary. NOTE: The solenoid is not a standard automotive type. Order from Wood-Mizer only
	Defective pump motor	Remove motor from pump and inspect. Repair or replace as necessary
You Can Get Response From the Pump By Actuating All But One or Two Handles	Valve assembly switch contacts are not properly adjusted	Locate the valve switch at the bottom of the valve assembly. Use a 3MM hex wrench to loosen the set screw on each of the five switch contacts. Press each contact to the valve block and tighten the contact set screw to secure in place. **CAUTION!** Do not overtighten! **NOTE:** Do not adjust the valve switch or switch spring; they have been preset at the factory.

PROBLEM	CAUSE	SOLUTION
Pump Motor Runs With Little Or No Response From The Cylinders	Low battery	Test battery. Recharge or replace as necessary
	Low fluid level	Check fluid level. Add an all-season hydraulic fluid such as Amoco Rycon Oil MV or Mobil Multipurpose ATF (automatic transmission fluid) until level is 4 - 4 1/2" (100 - 114mm) from bottom of reservoir with all cylinders retracted
	Pressure relief valve moved from proper setting	Adjust pressure relief valve.
	Low air temperature causing fluid to thicken	Allow fluid to warm up. Synthetic fluids are available that allow for hydraulic operation in cold weather conditions (Univis HVI 13)
Pump Motor Runs Continuously When Power Contact Is Made	Solenoid is stuck closed	Tapping the solenoid may solve this problem temporarily. Replace solenoid
Fluid Leaks From Around Cylinder Piston Ram	Worn seals	Replace seals in cylinder. Check piston ram for abrasive weld that may be causing premature seal failure
Fluid Leak Around Pump Box	Loose seal or fitting	Wipe pump off completely to locate cause of leak. You may have to unbolt the pump to wipe behind it. **NOTE:** Movement of the sawmill can cause fluid to slosh up into the foam filter in the reservoir cap, and subsequently spray out, giving the appearance that fluid is leaking from the pump
Hydraulic Side Supports Go Down Before Or At Same Time As Log Turner	Dirt in sequence valve	Remove sequence valves and clean thoroughly with kerosene. **NOTE:** Be sure to reassemble the valve and install it in its original position on the cylinder
	Retainer in sequence valve worn	Replace sequence valve
	Low air temperature causing fluid to thicken	Allow fluid to warm up. Synthetic fluids are available that allow for hydraulic operation in cold weather conditions (Univis HVI 13)
Hydraulic Turner Goes Up Before Or At Same Time As Side Supports	Dirt in sequence valve	Remove sequence valves and clean thoroughly with kerosene. **NOTE:** Be sure to reassemble the valve and install it in its original position on the cylinder
	Retainer in sequence valve worn	Replace sequence valve
	Low air temperature causing fluid to thicken	Allow fluid to warm up. Synthetic fluids are available that allow for hydraulic operation in cold weather conditions. (Univis HVI 13)

PROBLEM	CAUSE	SOLUTION
Hydraulic Toe Boards "Creep" UP OR DOWN without the valve control handles being operated OR do not raise or lower at all..	Can be a result of shock load caused by improperly using the toe boards to "cushion" or break the fall of a cant onto the bed): · damaged hoses · damaged cylinder seals or cylinder · damaged valve	**INITIAL CHECK** To check, disconnect the toe board hydraulic hose from its current valve section and temporarily connect it to another valve section. Check to see if the hydraulics operate properly. **If hydraulics operate properly,** hoses and cylinder seals are good. Perform further valve inspection, found below. **If creep still occurs,** check all hoses for possible pinholes causing leakage. Replace if applicable. Retest. **If creep still occurs,** replace cylinder seals or cylinder and retest. Be sure to reconnect the hose to the proper valve section when done. **FURTHER VALVE INSPECTION** If further inspection of the valve is required after initial check, remove the check valve shown below. Flush the check valve with an air hose or solvent to remove any dirt from the valve's seat. Reinstall and test again. Check to see if the hydraulics operate properly. **If creep still occurs,** replace the check valve with a new one. Retest. **If creep still occurs,** replace the hydraulic valve.
	Bad check valve (results in one of the toe boards experiencing down-creep)	Check the release valve as instructed above. If the release valve is good, replace the high-pressure hydraulic check valves (A12869) located on the pump.
Pump runs but makes "growling" sound and hydraulic functions are slow, jerky or don't work at all.	Low fluid level	Check fluid level and add fluid as necessary. Check for leaks in the system at the control box fittings, hoses and cylinders
A log loader cylinder does not move when lowering the loader causing the foot of other to raise completely before loader will start down.	Damaged cylinder shaft	Replace the cylinder that is not moving

6.3 Hydraulic Pressure Test

TO CHECK HYDRAULIC PRESSURE:

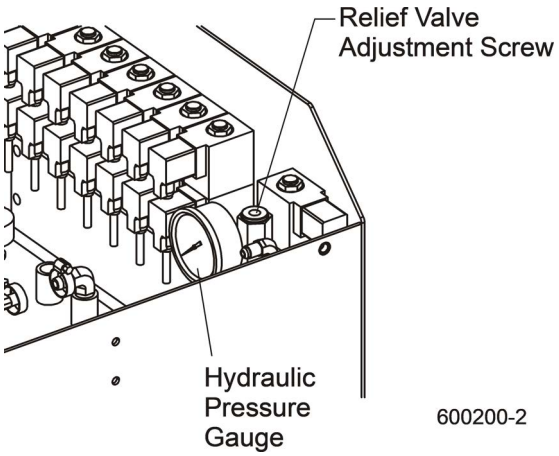


FIG. 6-1

Operate the loading arm hydraulic lever and read the pressure on the gauge. Hydraulic pressure is factory-set at 2200 psi and should not need to be readjusted. The relief valve adjustment screw shown may be used to fine-tune the hydraulic pressure:

9. Remove the adjustment screw nut. Tighten the adjustment screw (clockwise) to increase pressure. Loosen the adjustment screw (counterclockwise) to lower pressure.

CAUTION! Pressure should not exceed 2200 psi. If it does, the amp draw will rise above the design maximum of 200 amps, and could cause battery and system problems. Pressure above 2200 psi may also damage the hydraulic hoses.

6.4 Engine/Motor and Drive Pulleys Alignment

WARNING! Before performing service turn the key switch to the OFF (#0) position and remove the key. If the key is turned on and moving parts activated, serious injury may result.

Do not adjust the engine drive belts or belt support bracket with the engine running.

1. Install and properly tension the drive belt (*See Section 5.9*).
2. With the autoclutch disengaged, use a straight edge to check the alignment of the pulley on the engine/motor to the alternator pulley.
3. Loosen the bushing on the engine/motor pulley and adjust if necessary until it is aligned with the alternator pulley.
4. With the autoclutch disengaged, use a straight edge to check the alignment of the engine/motor pulley to the main drive pulley.
5. Loosen the bushing on the drive pulley and adjust if necessary until it is aligned with the engine/motor pulley.
6. **(E25/E30 Only):** Check that the engine/motor pulley is also square with the drive pulley. If neccessary, loosen the engine mounting bolts and cock the engine until the pulley is square with the drive pulley. Retighten the engine mounting bolts.
7. Check that all engine mounting bolts and pivot bushing clamps are tight.
8. Engage the autoclutch and recheck the pulley alignment. Adjust if necessary.
9. If any pulleys were adjusted, recheck the drive belt support(s) and adjust if necessary (*See Section 5.9*).

6.5 DCS Error Codes

NOTE: The information in the first 4 columns of this chart is provided on the front panel during an error.

TITLE	ERROR CODE	PROBLEM	RECOMMENDED USER ACTIONS	ADDITIONAL INFORMATION
Joystick Error	E01	Left Joystick Failure	1) Inspect harness for damage. 2) Consult the manual.	The E01 error code indicates the HMI is sensing that the LH joystick is drawing too much current. This is caused by a damaged (shorted) joystick harness, a defective joystick, or a damaged circuit within the HMI. Possible Solution(s): Swap the plugs on the two joysticks to see if the problem moves with the joystick, if so, replace the joystick. If the problem stays on the LH side (as error code indicates), inspect the wiring coming from the HMI for damage, if no damage is detected, replace the HMI module.
Joystick Error	E02	Right Joystick Failure	1) Inspect harness for damage. 2) Consult the manual.	The E02 error code indicates the HMI is sensing that the RH joystick is drawing too much current. This is caused by a damaged (shorted) joystick harness, a defective joystick, or a damaged circuit within the HMI. Possible Solution(s): Swap the plugs on the two joysticks to see if the problem moves with the joystick, if so, replace the joystick. If the problem stays on the RH side (as error code indicates), inspect the wiring coming from the HMI for damage, if no damage is detected, replace the HMI module.
Joystick Error	E03	LH Joystick Undetected	1) Verify Joystick is plugged in. 2) Inspect harness for damage. 3) Consult the manual.	The E03 error code indicates the HMI is sensing that the LH joystick is not connected (open load). This is caused by a damaged joystick harness, a defective joystick, or a damaged circuit within the HMI. Possible Solution(s): Inspect joystick wiring for damage and make sure joystick is plugged in, if plugged in and no damage is detected, swap joysticks and see if problem moves with joystick (as indicated by the error code). If problem moves with joystick, replace joystick, if not, replace HMI module.
Joystick Error	E04	RH Joystick Undetected	1) Verify Joystick is plugged in. 2) Inspect harness for damage. 3) Consult the manual.	The E04 error code indicates the HMI is sensing that the RH joystick is not connected (open load). This is caused by a damaged joystick harness, a defective joystick, or a damaged circuit within the HMI. Possible Solution(s): Inspect joystick wiring for damage and make sure joystick is plugged in, if plugged in and no damage is detected, swap joysticks and see if problem moves with joystick (as indicated by the error code). If problem moves with joystick, replace joystick, if not, replace HMI module.
Engine Shutdown	E05	Oil Pressure Too Low	1) Check oil level. 2) Consult the manual.	The E05 error code indicates the ECM has detected low oil pressure as sensed by the Oil Pressure Sending Unit on the engine. Possible Solution(s): Check oil level. Check oil pressure with appropriate tester. If false error is suspected, replace Oil Pressure Sending Unit with an approved unit. Note: If sender wire is shorted, pressure will read abnormally high, if wire is open (disconnected), pressure will read low, but steady, regardless of whether engine is running or not.

Engine Shut-down	E06	Water Temp Too High	1) Inspect engine cooling system. 2) Consult the manual.	The E06 error code indicates that the ECM has detected an engine over-temp condition as sensed by the Water Temperature Sending Unit. Possible Solution(s): Make sure radiator airflow is not restricted by sawdust. Check the coolant level in the engine following all applicable precautions. Consult engine manufacturer's documentation for further information or, if false error is suspected, replace Water Temperature Sending Unit with an approved unit. Note: If sender wire is shorted, pressure will read abnormally high, if wire is open (disconnected), pressure will read low, but steady, regardless of whether engine is running or not.
Voltage Error	E07	Battery Voltage Too Low	1) Verify battery condition. 2) Inspect battery/charging system connections. 3) Check charging system. 4) Consult the manual.	The E07 error code indicates that the system has detected a low voltage condition. Possible Solution(s): A reoccurring low voltage condition can be caused by several conditions including: weak battery, defective charging system, loose battery and/or ground connections, etc.
Auto-Clutch Error	E08	Current Too High	1) Check drive belt tension. 2) Verify Auto-Clutch is not binding. 3) Inspect motor wiring for damage. 4) Consult the manual.	The E08 error code indicates that the ECM has detected an over-current condition with the Autoclutch motor. Possible Solution(s): Determine when the error occurs; if error occurs consistently just before clutch is fully engaged, drive belt is probably too tight, loosen belt tensioner. If error occurs consistently just before clutch is fully disengaged, the brake spring in the adjustment rod is adjusted too tight, tighten belt adjustment rod (making sure belt doesn't become too tight). If problem occurs at any given location, problem may be with the motor, motor wiring, or gearbox. Try to rotate Autoclutch pulley (with key off) by hand to check for excessive mechanical resistance. Note: The looser the adjustment rod is, the tighter the brake spring is applied. When the drive belt is new, the adjustment window between the proper belt tension and proper brake spring tension is fairly tight (just a few turns of the adjustment rod in some cases), as the belt wears and belt adjustments are made, this window will open significantly
Auto-Clutch Error	E09	Auto-Clutch Undetected	1) Verify Auto-Clutch is plugged in. 2) Inspect motor wiring for damage. 3) Consult the manual.	The E09 error code indicates that the ECM has detected an open-load condition with the Autoclutch motor. This can be caused by the motor not being plugged in, loose/broken connections/wires, worn motor brushes, a defective motor, or a faulty circuit within the ECM. Possible Solution(s): Make sure Autoclutch motor is plugged in. Inspect Autoclutch wiring for damage. Tap on motor while trying to operate, if the motor takes off then this usually indicates the motor brushes are worn and need replaced. Lastly, bench test the motor, if the motor tests good, problem is either a broken wire in the harness between the ECM and the Autoclutch motor, or a defective circuit within the ECM.

Auto-Clutch Error	E10	Magnetic Switch Defective	1) Verify Autoclutch magnetic switches are plugged in. 2) Consult the manual.	The E10 error code indicates that the ECM is not receiving the proper signals back from the magnetic switches on the Autoclutch. The error indicates that there is no signal (voltage) being returned from either switch which is an invalid state. There should always be voltage returned from one or both of the switches depending on the cam's location. Possible Solution(s): Make sure both switches are plugged in. Inspect wiring for switches. Ohm the switches while they're disconnected. Note: With a screwdriver blade in front of the switch (look for the target symbol on the switch) the switch should be open (no continuity), when the screwdriver is removed the switch should close.
Blade Guide Arm Error	E11	Current Too High	1) Inspect Blade Guide Arm for binding. 2) Inspect motor wiring for damage. 3) Consult the manual.	The E11 error code indicates the ECM is detecting that the Blade Guide Arm Motor is drawing too much current. This can be caused by the V-groove rollers being too tight on the arm, faulty V-groove roller bearings, a rusty B/G arm chain, shorted wiring, or a defective motor. Possible Solution(s): Acknowledge the error on the screen by pressing the "check" mark button, unplug the B/G arm motor and try to operate, if the E11 error reoccurs with motor disconnected, the problem is in the wiring (shorted) or there is a defective circuit within the ECM. If the error does not reoccur, the problem is isolated to the motor or a mechanical issue. Disconnect the chain and see if the error reoccurs, if it does, the most likely cause is the motor, if not, problem is likely mechanical...go to the diagnostic screen in the config menu that shows the current (amperage) for the B/G arm, the normal operating current should be around 4-6 amps, use this diagnostic tool while making repairs/adjustments to the mechanical portion of the Autoclutch to tell you when the current is in the proper range. Note: If the arm is driven into the stops for more than a couple of seconds, this will cause an over-current error, if this was the case, simply acknowledge the error (press the "check" mark button at the bottom of the screen) and, if desired, clear the error log from within the config screen.
Debarker In/Out Error	E12	Current Too High	1) Verify Debarker arm is not binding. 2) Inspect motor wiring for damage. 3) Consult the manual.	The E12 error code indicates that the ECM is detecting that the Debarker in/out motor is drawing too much current. This can be caused by a mechanical bind, damaged (shorted) wiring, or defective motor. Possible Solution(s): Disconnect the Debarker in/out motor and try to operate, if the E12 error reoccurs with motor disconnected, the problem is in the wiring (shorted) or there is a defective circuit within the ECM. If the error does not reoccur, the problem is isolated to the motor or a mechanical issue. With the motor connected, disconnect the belt on the in/out motor and see if the error reoccurs, if it does, the most likely cause is the motor, if not, problem is likely mechanical...go to the diagnostic screen in the config menu that shows the current (amperage) for the Debarker In/Out motor, the normal operating current should be around 4-6 amps, use this diagnostic tool while making repairs/adjustments to the mechanical portion of the Debarker to tell you when the current is in the proper range. Note: If the arm is driven into the stops for more than a couple of seconds, this will cause an over-current error, if this was the case, simply acknowledge the error (press the "check" mark button at the bottom of the screen) and, if desired, clear the error log from within the config screen.

Starter Solenoid Error	E13	Current Too High	1) Inspect wiring for damage. 2) Consult the manual.	The E13 error code indicates the ECM has detected that the starter solenoid is drawing too much current. This can be caused by damaged (shorted) wiring for the starter solenoid, a defective solenoid, or a defective circuit within the ECM. Possible Solution(s): Remove wire from the starter solenoid and try to crank the engine, if error E13 does not reoccur, problem is likely the starter solenoid. If problem does reoccur, problem is in the wiring (shorted) or there is a defective circuit within the ECM.
Engine ECU Power	E14	Current Too High	1) Inspect wiring for damage. 2) Consult the manual.	The E14 error code indicates the ECM has detected that the circuit for "ECU Power" on the Yanmar engine is drawing too much current. This can be caused by damaged (shorted) wiring on the engine harness, a shorted actuator relay, a defective ECM, or a defective (shorted) engine ECU. Possible Solution(s): Carefully inspect red wire #5 that runs from the ECM (P1.3) to the engine harness round connector (P1.G) for any kind of short, if wiring looks OK, consult engine manufacturer's wiring documentation for possible solution. If no wiring issues are detected, inspect actuator relay for possible shorted coil, if OK, problem is either defective circuit within the ECM or a bad engine ECU.
Throttle Error	E15	Current Too High	1) Inspect wiring for damage. 2) Consult the manual.	The E15 error code indicates the ECM has detected that the circuit for the engine ECU throttle command is pulling too much current. This can be caused by damaged (shorted) wiring to the throttle relay assembly, A shorted throttle relay coil, or a defective circuit within the ECM. Possible Solution(s): Inspect wiring going to the throttle relay assy. for damage (short). Disconnect white wire #48 from the white wire of throttle relay assembly, if E15 error does not reoccur, problem is shorted wire in the relay assy. or a defective throttle relay. If E15 does reoccur, problem is either in the harness or the ECM.
Lubemizer Error	E16	Current Too High	1) Inspect pump wiring for damage. 2) Inspect pump for obstruction. 3) Consult the manual.	The E16 error code indicates the ECM has detected that the circuit for the Lubemizer pump is drawing too much current. This can be caused by damaged (shorted) wiring to the pump, debris in the pump, frozen or defective pump, or a defective circuit within the ECM. Possible Solution(s): Inspect wiring for Lubemizer pump for damage (short). Disconnect pump, if E16 does not reoccur, problem is with the pump. If E16 does reoccur, problem is in the harness or the ECM.
Power Feed Error	E17	Current Too High	1) Verify feed system is not binding. 2) Inspect Feed motor wiring for damage. 3) Consult the manual.	The E17 error code indicates the MCM has detected that the circuit for the forward/reverse motor is drawing too much current. This can be caused by a mechanical bind, damaged (shorted) feed motor wiring, defective motor, or a defective MCM. Possible Solution(s): Inspect wiring for damage. Remove the wires from the feed motor, if E17 reoccurs, problem is a damaged (shorted) harness or a defective MCM. If E17 does not reoccur, problem is either mechanical bind or a defective motor. Disconnect feed motor from the gear box and reconnect the wires to the motor, if motor now runs without an E17 reoccurring then problem is a mechanical bind. Note: The feed motor icon on the display indicates feed motor current (amperage), this can be used when making mechanical repairs/adjustments to know when the binding problem is completely fixed. Normal max current should be in the 60-70 amp range.

Up/Down Error	E18	Current Too High	1) Inspect Up/Dn system for binding. 2) Inspect Up/Dn motor wiring for damage. 3) Consult the manual	The E18 error code indicates the MCM has detected that the circuit for the Up/down motor is drawing too much current. This can be caused by a mechanical bind, damaged (shorted) up/down motor wiring, defective motor, or a defective MCM. Possible Solution(s): Inspect wiring for damage. Disconnect the wires from the feed motor, if E18 reoccurs, problem is a damaged (shorted) harness or a defective MCM. If E18 does not reoccur, problem is either mechanical bind or a defective motor. Disconnect Up/down motor belt and reconnect the wires to the motor, if motor now runs without an E18 reoccurring then problem is a mechanical bind. Note: The Up/down motor icon on the display indicates up/down motor current (amperage), this can be used when making mechanical repairs/adjustments to know when the binding problem is completely fixed. Normal max current should be in the 65-75 amp range. Additional Note: The vertical mast for the head has gas shocks in it that act to "remove weight" from the head, If defective, this will cause excessive motor current acting like a mechanical bind.
Communication Error	E19	ECM Communication Loss	1) Verify communication cable is plugged in. 2) Consult the manual.	The E19 error code indicates that the system has lost the ability to communicate via the CANBus with the ECM. Possible Solution(s): If the system is communicating with all of the other modules (as indicated by the revision number next to each module listed in the diagnostic screen) then the problem is either a tripped breaker for the ECM, or a defective ECM. If there are other modules not communicating then the problem is cabling. Take note of which modules are communicating and replace appropriate cable.
Communication Error	E20	MCM Communication Loss	1) Verify communication cable is plugged in. 2) Consult the manual.	The E20 error code indicates that the system has lost the ability to communicate via the CANBus with the MCM. Possible Solution(s): If the system is communicating with all of the other modules (as indicated by the revision number next to each module listed in the diagnostic screen) then the problem is either a tripped breaker for the MCM, a defective communication cable that runs from the MCM to the ECM, or a defective MCM. Note: Once the error is acknowledged on the control panel, question marks on the display in place of the head position is normal with this error (the MCM communicates the head position)
Communication Error	E21	HCM Communication Loss	1) Verify communication cable is plugged in. 2) Consult the manual.	The E21 error code indicates that system has lost the ability to communicate via the CANBus with the HCM. Possible Solution(s): Check to see if the HCM power fuse (F4) is blown, if so, replace. If fuse keeps blowing, the problem is either a shorted power cable going to the HCM or a shorted HCM. If fuse is not blown and the system is communicating with all of the other modules (as indicated by the revision number next to each module listed in the diagnostic screen) then the problem is a defective HCM. Note: Before replacing HCM, double check that all other modules are communicating properly by operating the other modules - the hydraulic functions should be the only ones unable to function.

Communication Error	E22	HMI Communication Loss	1) Verify communication cable is plugged in. 2) Consult the manual.	The E22 error code indicates that the HMI is not communicating with the rest of the system. Possible Solution(s): This is usually caused by a defective, damaged, or loose cable that runs from the back of the control box to the hydraulic box receptacle, poor connections or damaged wiring inside the control box from the HMI to the receptacle on the back of the box, or poor connections/damaged wiring inside the hydraulic box from the receptacle to the HCM. If cabling/wiring is not the issue then problem may be defective transceiver on the HMI, replace HMI.
Transducer Error	E23	Loss of Transducer Signal	1) Inspect solenoid wiring for damage 2) Test Debarker solenoid coil 3) Consult the manual	The E23 error code indicates that the MCM is not receiving signals from the Transducer. This can be caused by a defective/damaged Transducer cable, splitter cable (receptacles on bottom of power box), Transducer, or the MCM. Note: The Transducer circuit can be difficult to isolate the failed component in due to the high-speed nature of this circuit. Replace components in this order: 1. Transducer Cable 2. Splitter Cable 3. Transducer 4. MCM
Debarker Blade Motor	E26	Debarker Motor Solenoid	1) Inspect solenoid wiring for damage 2) Test Debarker solenoid coil 3) Consult the manual	The E26 error code indicates that the circuit for the Debarker solenoid is drawing too much current or that solenoid is not detected (open). This can be caused by damaged (shorted) wiring from the ECM to the Debarker solenoid, a defective solenoid (shorted/open coil), or a defective circuit within the ECM. Possible Solution(s): Test the coil on the Debarker solenoid by removing the wires and Ohm testing the coil. The coil resistance reading should be approx. 21 ohms. If resistance shows open or shorted, replace solenoid. If resistance OK, problem is wiring or defective circuit within the ECM.
Auxiliary	E28	Auxiliary Output Fault	1) Inspect wiring for damage. 2) Consult the manual.	The E28 error code indicates that the ECM is detecting that the circuit for the Auxiliary (I/O) output is drawing too much current. This can be caused by damaged (shorted) wiring from the ECM to the auxiliary load, a defective circuit within the ECM, or a problem with the load itself. Possible Solution(s): Disconnect the wire from the load (i.e.. solenoid, lights, etc.), if E28 does not reoccur then problem is the device that the wire was connected to. If E28 does reoccur, then problem is either damaged (shorted) wiring from the ECM or a defective circuit within the ECM. Note: Auxiliary output is rated at 20A continuous.
Up/Down AC Drive	E29	AC Drive Fault	1) Check fault code on AC Drive 2) Consult the AC Drive manual.	The E29 error code indicates the ECM has detected that the fault relay on the up/down AC inverter drive has changed states indicating to the control system that the drive has detected an error and has shut down. Possible solution(s): Determine what the error code is on the inverter drive and consult drive manufacturer's documentation.
For/Rev AC Drive	E30	AC Drive Fault	1) Check fault code on AC Drive 2) Consult the AC Drive manual.	The E30 error code indicates the ECM has detected that the fault relay on the forward/reverse AC inverter drive has changed states indicating to the control system that the drive has detected an error and has shut down. Possible solution(s): Determine what the error code is on the inverter drive and consult drive manufacturer's documentation.

Ignition	E31	Ignition Circuit Fault	1) Inspect wiring for damage. 2) Consult the manual.	The E31 error code indicates a problem with the ignition circuit which is only applicable to the gas engine option currently not available.
Glow Plug 1	E32	Current too Low	1) Inspect wiring for damage. 2) Test Glow Plug. 3) Consult the manual.	The E32 error code indicates the ECM has detected that glow plug #1 (or the air intake heater on Yanmar engines) is not drawing enough current. This can be caused by faulty connections, damaged (open) wiring going to the glow plug/air heater, a burned out (open) glow plug/air heater, or a defective circuit within the ECM. Possible Solution(s): Use a properly grounded test light (not a meter) to probe the wire terminal at the glow plug/air heater, if E32 error does not reoccur with test light hooked up (light will act as the load) then problem is with the glow plug/air heater. If E32 error does reoccur, problem is either a broken (open) wire from the ECM or the ECM itself.
Glow Plug 2	E33	Current too Low	1) Inspect wiring for damage. 2) Test Glow Plug. 3) Consult the manual.	The E33 error code indicates the ECM has detected that glow plug #2 is not drawing enough current. This can be caused by faulty connections, damaged (open) wiring going to the glow plug, a burned out (open) glow plug, or a defective circuit within the ECM. Possible Solution(s): Use a properly grounded test light (not a meter) to probe the wire terminal at the glow plug, if E33 error does not reoccur with test light hooked up (light will act as the load) then problem is with the glow plug. If E33 error does reoccur, problem is either a broken (open) wire from the ECM or the ECM itself.
Glow Plug 3	E34	Current too Low	1) Inspect wiring for damage. 2) Test Glow Plug. 3) Consult the manual.	The E34 error code indicates the ECM has detected that glow plug #3 is not drawing enough current. This can be caused by faulty connections, damaged (open) wiring going to the glow plug, a burned out (open) glow plug, or a defective circuit within the ECM. Possible Solution(s): Use a properly grounded test light (not a meter) to probe the wire terminal at the glow plug, if E34 error does not reoccur with test light hooked up (light will act as the load) then problem is with the glow plug. If E34 error does reoccur, problem is either a broken (open) wire from the ECM or the ECM itself.
Glow Plug 4	E35	Current too Low	1) Inspect wiring for damage. 2) Test Glow Plug. 3) Consult the manual.	The E35 error code indicates the ECM has detected that glow plug #3 is not drawing enough current. This can be caused by faulty connections, damaged (open) wiring going to the glow plug, a burned out (open) glow plug, or a defective circuit within the ECM. Possible Solution(s): Use a properly grounded test light (not a meter) to probe the wire terminal at the glow plug, if E35 error does not reoccur with test light hooked up (light will act as the load) then problem is with the glow plug. If E35 error does reoccur, problem is either a broken (open) wire from the ECM or the ECM itself.
Glow Plug 1	E36	Current too Low	1) Inspect wiring for damage. 2) Consult the manual.	The E36 error code indicates the ECM has detected that glow plug #1 (or the air intake heater on Yanmar engines) is drawing too much current. This can be caused by damaged (shorted) wiring going to the glow plug/air heater, a shorted glow plug/air heater, or a defective circuit within the ECM. Possible Solution(s): Disconnect the glow plug/air heater, if the E36 error does not reoccur, problem is with glow plug/air heater. If E36 error does reoccur then problem is either damaged (shorted) wiring or the ECM itself

Glow Plug 2	E37	Current too Low	1) Inspect wiring for damage. 2) Consult the manual.	The E37 error code indicates the ECM has detected that glow plug #2 is drawing too much current. This can be caused by damaged (shorted) wiring going to the glow plug, a shorted glow plug, or a defective circuit within the ECM. Possible Solution(s): Disconnect the glow plug, if the E37 error does not reoccur, problem is with glow plug. If E37 error does reoccur then problem is either damaged (shorted) wiring or the ECM itself
Glow Plug 3	E38	Current too Low	1) Inspect wiring for damage. 2) Consult the manual.	The E38 error code indicates the ECM has detected that glow plug #3 is drawing too much current. This can be caused by damaged (shorted) wiring going to the glow plug, a shorted glow plug, or a defective circuit within the ECM. Possible Solution(s): Disconnect the glow plug, if the E38 error does not reoccur, problem is with glow plug. If E38 error does reoccur then problem is either damaged (shorted) wiring or the ECM itself
Glow Plug 4	E39	Current too Low	1) Inspect wiring for damage. 2) Consult the manual.	The E39 error code indicates the ECM has detected that glow plug #4 is drawing too much current. This can be caused by damaged (shorted) wiring going to the glow plug, a shorted glow plug, or a defective circuit within the ECM. Possible Solution(s): Disconnect the glow plug, if the E39 error does not reoccur, problem is with glow plug. If E39 error does reoccur then problem is either damaged (shorted) wiring or the ECM itself
Debarker Horn	E41	Debarker Horn Fault	1) Inspect wiring for damage. 2) Consult the manual.	The E41 error code indicates the ECM has detected that the circuit for the Debarker horn is drawing too much current (amperage). This can be caused by damaged (shorted) wiring going to the horn, a defective horn, or a defective circuit within the ECM. Possible Solution(s): Disconnect the horn, if the E41 error does not reoccur then problem is with the horn. If the E41 error does reoccur then problem is either with damaged wiring (shorted) or the ECM.
Display Heater	E42	LCD Heater Fault	1) Make sure heater is plugged in. 2) Inspect wiring for damage. 3) Consult the manual.	The E42 error code indicates the HMI has detected that the circuit for the display heater is drawing too much current (amperage). This can be caused by damaged (shorted) wiring going to the heater, a defective heater, or a defective circuit within the HMI. Possible Solution(s): Inspect the heater wires (white wires on back of display) for damage. Inspect the heater itself for damage. Ohm test the heater, the heater should be approx. 14 Ohm's when measuring from terminal to terminal on the heater's plug, if not, replace heater assy. If Ohm reading is OK, replace the HMI board assy. Note: The heater is automatically operated at temperatures of 32 degrees F. and lower.
Hydraulic Function	E43	Hydraulic Function Error	1) Inspect hydraulic valve wiring for damage. 2) Test coil for hydraulic valve. 3) Consult the manual.	The E43 error code indicates the HCM has detected an error with one of the hydraulic valve coils. Displayed along with the E43 error code is the HCM error code that corresponds to the function that has the issue. See *Table on page 19* for HCM Error Code Chart. Possible Solution(s): The HCM error codes generally refers to issues with the coils that sit atop the hydraulic valves, however, a damaged cable (open or shorted) going to the valves will also cause an error. Find the coil of the valve that was reported as having a problem and swap the coil with another valve to see if the problem moves with the coil, if it does, replace the coil, if not, the problem is either the cable or a problem with the output on the HCM.

Auto-Clutch Error	E44	Clutch is engaged	1) Disengage clutch before starting engine.	The E44 error code is displayed when the ECM detects that the Autoclutch (blade) is not fully disengaged. This safety feature keeps the engine from cranking until the Autoclutch is disengaged to prevent unexpected blade movement, excessive starter load, and excessive drain on the battery. Possible Solution(s): Acknowledge the error on the screen, disengaged the Autoclutch then restart engine.
Auto-Clutch Error	E45	Clutch did not shut off	1) Check clutch engage/disengage switches. 2) Consult the manual.	The E45 error code indicates that the Autoclutch hasn't shut off within a specified period of time. This can be caused by defective magnetic switches, loose/unplugged connections for the switches or damaged (open) wiring. Possible Solution(s): Make sure the magnetic switches for the Autoclutch are plugged in. Inspect wiring for damage (open). Use an Ohm meter to test the switches while they are unplugged. Use a screwdriver blade (piece of metal) and look for the target symbol on face of sensor, place the screwdriver in front of the "target zone" on the switch, there should be no continuity on the meter with the screwdriver in front of the switch and continuity when the screwdriver is removed. If switches test good, reconnect and retry, if system works OK then one of the switches was probably "sticking" and may be failing soon. If problem still exists, disconnect switches and with a voltmeter grounded to the chassis, make sure +5 Vdc is getting to the two switches from the ECM on red wires #28 and #29. If no voltage present, problem is either a damaged (open) wire from the ECM or a defective circuit within the ECM. Note: The ECM drives the Autoclutch motor until it receives a 5 volt signal back from one of the Autoclutch's magnetic switches (which one depends on whether the clutch is being engaged or disengaged). The ECM outputs the 5 Vdc that travels to the switches, when the switches are closed the 5Vdc flows through the switch and back to the ECM. The switches are used by the ECM to know if the clutch is engaged or disengaged.
Application Error	E46	HMI Software corrupt	1) Reprogram HMI. 2) Consult the manual.	The E46 error code indicates a problem with the software loaded into the HMI. Possible Solution(s): Reprogram the HMI using the SD memory card socket and an approved memory card. If this does not correct the issue, replace the HMI assy. Note: If the error occurred after updating the software, the software on the memory card may have been corrupt, either revert back to an earlier version (if card is available) or order a new software upgrade.
AC Drive Power Supply	E47	Power Supply voltage low	1) Up/Down AC Drive 24v power supply overloaded. 2) Inspect control wiring for damage. 3) Consult the manual.	The E47 error code indicates that the 24V power supply on the up/down AC inverter drive has dropped below 18V. This can be caused by damaged (shorted) wiring from the 24V output of the drive or a defective circuit within the ECM.
AC Drive Power Supply	E48	Power Supply voltage low	1) For/Rev AC Drive 24v power supply overloaded. 2) Inspect control wiring for damage. 3) Consult the manual.	The E48 error code indicates that the 24V power supply on the forward/reverse AC inverter drive has dropped below 18V. This can be caused by damaged (shorted) wiring from the 24V output of the drive or a defective circuit within the ECM.

LCD Back-light	E53	Current too High	1) Inspect wiring for damage. 2) Consult the manual.	The E53 error code indicates the HMI has detected that the LCD backlight is drawing too much current. This can be caused by damaged (shorted) wires from the HMI to the LCD backlight, a defective LCD backlight, or a faulty output on the HMI. Possible Solution(s): Inspect the wires for the LCD backlight for damage (short). Disconnect the backlight wires at the HMI, if the E53 error code reoccurs, replace the HMI. If the error does not reoccur, replace the LCD.
Head Travel Limit	E54	Head too High/Low	1) Select different board thickness. 2) Consult the manual.	The E54 error code is displayed when the user is trying to make an auto-drop that would position the head beyond the upper or lower head limits.
Engine ECU Power	E55	Engine ECU Undetected	1) Inspect wiring for damage. 2) Consult the manual.	The E55 error code indicates that the ECM has detected that the circuit for "ECU Power" on the Yanmar engine is not drawing enough current (open circuit). This can be caused by damaged (open) wiring on the engine harness, an open coil on the actuator relay, a defective ECM, or possibly a defective engine ECU. Possible Solution(s): Carefully inspect red wire #5 that runs from the ECM (P1.3) to the engine harness round connector (P1.G) for any kind of damage (open), if wire looks OK, consult engine manufacturer's wiring documentation for wire routing on engine, inspect wiring on engine. If no wiring issues are detected, inspect actuator relay for open coil, if OK, problem is either defective circuit within the ECM or a bad engine ECU.
Throttle Error	E56	Throttle Relay Undetected	1) Make sure throttle relay is plugged in. 2) Inspect wiring for damage. 3) Consult the manual.	The E56 error code indicates that the ECM has detected that the circuit for the engine throttle command is not drawing enough current (open circuit). This can be caused by damaged (open) wiring to the throttle relay assembly, An open throttle relay coil, or a defective circuit within the ECM. Possible Solution(s): Inspect wiring going to the throttle relay assy. for damage (open). Disconnect white wire #48 from the white wire of throttle relay assembly, using a properly grounded test light (not a meter) probe the white wire from the ECM (the light will act as the load), if E56 error does not reoccur, problem is an open wire in the relay assy. or a defective throttle relay. If E56 does reoccur, problem is either in the harness or the ECM.
Starter Solenoid Error	E57	Starter Solenoid Undetected	1) Make sure starter solenoid is plugged in. 2) Inspect wiring for damage. 3) Consult the manual.	The E57 error code indicates the ECM has detected that the starter solenoid circuit is not pulling enough current (open circuit). This can be caused by damaged (open) wiring from The ECM to the starter solenoid, a defective (open) starter solenoid, or a defective circuit within the ECM. Possible Solution(s): Using a properly grounded test light (not a meter), probe the starter solenoid terminal (the small post), with the test light connected, try to start engine, If error E57 does not reoccur, problem is with starter solenoid. If error reoccurs, the problem is a damaged (open) wire from the ECM or the ECM itself. Note: The starter solenoid relay that is in the engine manufacturer's harness is not used to actuate the starter.
Ignition Error	E58	Ignition System Undetected	1) Inspect wiring for damage. 2) Consult the manual.	The E58 error code indicates a problem with the ignition circuit which is only applicable to the gas engine option currently not available. If this error pops up, make sure engine type selected is correct.

Lubemizer Error	E59	Lubemizer Pump Undetected	1) Make sure Lubemizer pump is plugged in. 2) Inspect wiring for damage. 3) Consult the manual.	The E59 error code indicates the ECM has detected that the circuit for the Lubemizer pump is not drawing enough current (amperage). This can be caused by the pump not being plugged in, damaged (open) wiring going to the pump, or a defective circuit within the ECM. Possible Solution(s): Unplug the Lubemizer Pump, using a properly grounded test light (not a meter), probe the red wire coming from the ECM (the light will act as the load). Try to use the pump, If the E59 error does not reoccur, problem is with the pump. If error reoccurs, problem is damaged (open) wiring or defective circuit within ECM.
Engine Configuration Error	E61	Wrong Engine Type Selected	1) Reconfigure System to Correct Engine Type. 2) Consult the manual.	The E61 error code indicates that the wrong engine type is selected in the user configuration screen. Reconfigure System to Correct Engine Type.
Incorrect Start Command	E62	Incorrect Start Command	1) Press Blade Engage Button on Console to Start Main Motor and Engage Blade	The E62 error occurs when the user moves the key to the "crank" position on an AC mill. The main electric motor is started by pressing the blade engage button on the front panel. Note: For safety reasons, the engage button must be depressed twice within a couple of seconds for motor to start.

The HCM Error Codes are shown below.

// Bed Mode 1	Code
ERROR_OUTPUT_CLAMP_OUT	100
ERROR_OUTPUT_CLAMP_IN	101
ERROR_OUTPUT_CLAMP_DOWN	102
ERROR_OUTPUT_CLAMP_UP	103
ERROR_OUTPUT_LOAD_DOWN	104
ERROR_OUTPUT_LOAD_UP	105
ERROR_OUTPUT_FRONT_PINCH_OUT	106
ERROR_OUTPUT_FRONT_PINCH_IN	107
// Bed Mode 2	**Code**
ERROR_OUTPUT_TURNER_DOWN	200
ERROR_OUTPUT_TURNER_UP	201
ERROR_OUTPUT_TURN_SPIN_CCW	202
ERROR_OUTPUT_TURN_SPIN_CW	203
ERROR_OUTPUT_LOGDECK_OUT	204
ERROR_OUTPUT_LOGDECK_IN	205
// Bed Mode 3	**Code**
ERROR_OUTPUT_FRONT_PINCH_DOWN	300
ERROR_OUTPUT_FRONT_PINCH_UP	301
ERROR_OUTPUT_FRONT_TOE_DOWN	302
ERROR_OUTPUT_FRONT_TOE_UP	303
ERROR_OUTPUT_REAR_PINCH_DOWN	304
ERROR_OUTPUT_REAR_PINCH_UP	305
ERROR_OUTPUT_REAR_TOE_DOWN	306
ERROR_OUTPUT_REAR_TOE_UP	307
// Output solenoid and bypass	**Code**
ERROR_OUTPUT_SOL_A	400
ERROR_OUTPUT_SOL_B	401
ERROR_OUTPUT_FLOW_CONTROL	402
ERROR_OUTPUT_BYPASS	403
// Unused output	**Code**
ERROR_OUTPUT_REAR_PINCH_OUT	500
ERROR_OUTPUT_REAR_PINCH_IN	501

SECTION 7 SAWMILL ALIGNMENT

The Wood-Mizer sawmill is factory aligned. Two alignment procedures are available to realign the sawmill if necessary.

- The Routine Alignment instructions should be performed as necessary to solve sawing problems not related to blade performance.
- The Complete Alignment procedure should be performed approximately every 1500 hours of operation (sooner if you regularly transport the sawmill over rough terrain).

NOTE: THE PROCEDURES LISTED HERE MUST BE PERFORMED IN THE ORDER THEY APPEAR.

7.1 Routine Alignment Procedure

Blade Installation

1. Remove the blade and check the blade wheel belts. Remove any sawdust buildup from the surface of the belts. Replace worn belts if they do not keep the blade from contacting the blade wheel.
2. Install a clean blade and apply the appropriate tension (*See Section 3.4*).
3. Inspect the blade guide blocks for damage or wear and replace as necessary. Check the blade guide blocks and drive side deflector plate are properly adjusted (*See Section 5.2*).
4. Adjust the idle-side cant control to track the blade (*See Section 3.5*).
5. Close the blade housing covers and make sure all persons are clear of the saw head.
6. Start the engine (or motor).
7. Engage the blade, rotating the blade until the blade positions itself on the wheels.

WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

8. Disengage the blade.
9. Turn the engine off and remove the key.
10. as described above.

Saw Head Tilt

As the blade enters a wide log or cant, the outside of the saw head will drop down slightly. To compensate for the drop, the saw head is adjusted 1/16" (1.5 mm) higher at the outside.

1. Move the saw head so the blade is positioned over a bed rail.
2. Adjust the blade guide arm to 1/2" (13 mm) from full open.
3. Measure from the blade to the bed rail near the outer blade guide assembly.

All measurements should be within +/- 1/32" (0.8 mm).

1). To adjust the saw head tilt, use the bolts located at the bottom of the saw head mast.

2). Loosen the three sets of four retaining plate bolts.

3). To raise the outside of the saw head, back the stop bolts out, then tighten the adjustment bolts.

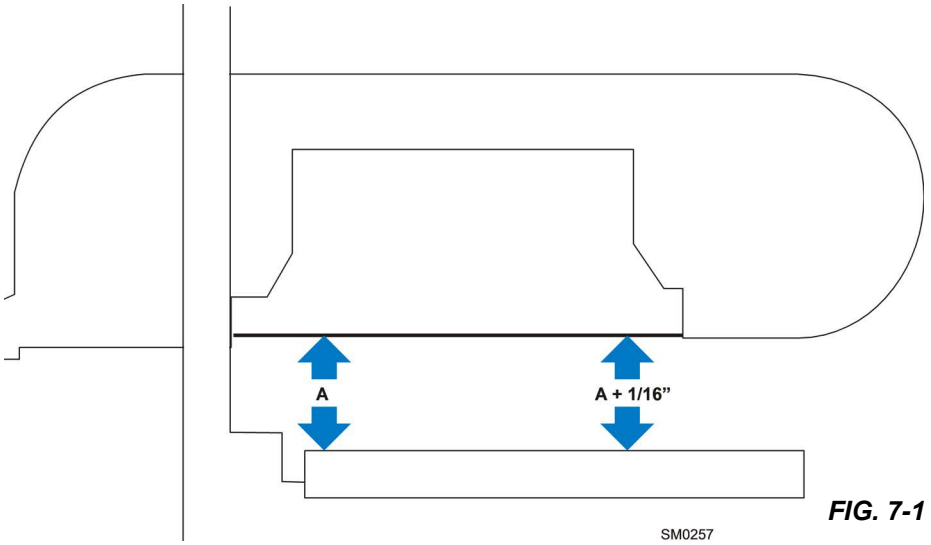


FIG. 7-1

4). To lower the outside of the saw head, loosen the adjustment bolts and tighten the stop bolts.

5). Recheck the measurement from the blade to the bed rails.

6). Adjust the stop bolts and adjustment bolts until the outside of the saw head is 1/16" higher than the inside.

7). Retighten the retaining plate bolts.

CAUTION! It is important that the lower stop bolts are properly adjusted to secure the carriage on the track rail. Failure to properly adjust the stop bolts can cause saw head damage, especially during mill transportation.

Blade Guide Arm Alignment

The blade guide arm moves the outer blade guide in and out. If the arm becomes loose, the blade guide will not deflect the blade properly, causing inaccurate cuts. A loose blade guide arm can also cause blade vibration.

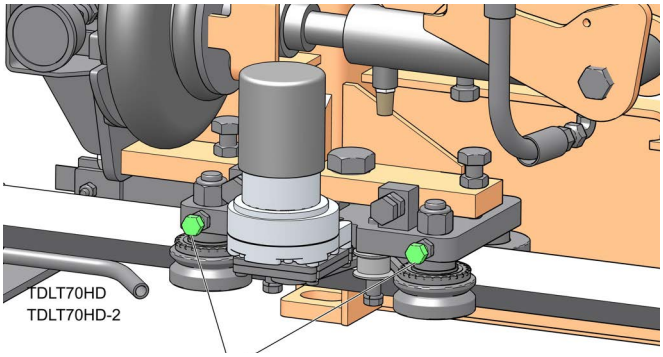


FIG. 7-2

1. Adjust the blade guide arm in to 1/2" (13 mm) from fully closed.
2. Manually try to move the arm up and down.

If you can move the arm by hand, you will need to tighten the arm rollers.

3. Loosen the jam nuts and turn the adjustment bolts in to tighten the blade guide arm rollers. See FIG. 7-30.
4. Retighten the jam nuts.
5. Check that the arm is aligned properly.
6. With the arm adjusted 1/2" (13 mm) from **fully closed**, measure the distance between the blade guide roller flange and the back of the blade.
7. Adjust the blade guide arm to 1/2" (13 mm) from **fully open** and remeasure the distance from the roller flange to the back of the blade.

The two measurements should be the same. If not, adjust the inner rollers in or out to tilt the arm horizontally. See FIG. 7-3.

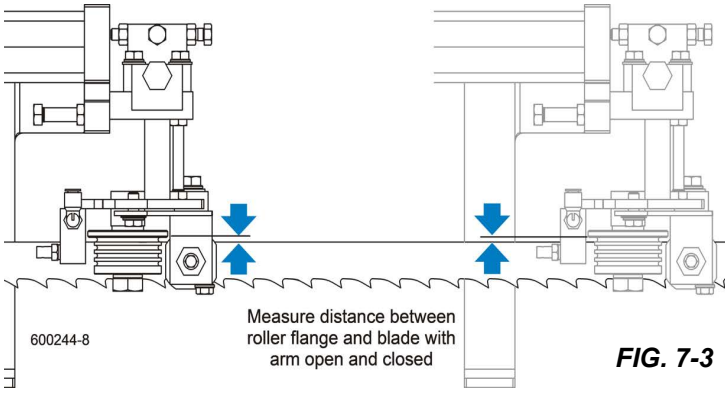


FIG. 7-3

8. Loosen the horizontal adjustment bolt jam nuts. See FIG. 7-4.
    1). To tilt the arm in toward the blade, loosen the rear bolt and tighten the front bolt.
    2). To tilt the arm out away from the blade, loosen the front bolt and tighten the rear bolt.
    3). Retighten the jam nuts.
    4). Recheck the blade guide arm horizontal tilt.
9. Check the vertical tilt of the blade guide arm.
10. Move the saw carriage so the blade guide arm is positioned over a bed rail.
11. With the arm 1/2" (15 mm) from **fully closed**, raise or lower the saw head until the bottom of the blade guide block is 15" (375 mm) from the top of the bed rail.

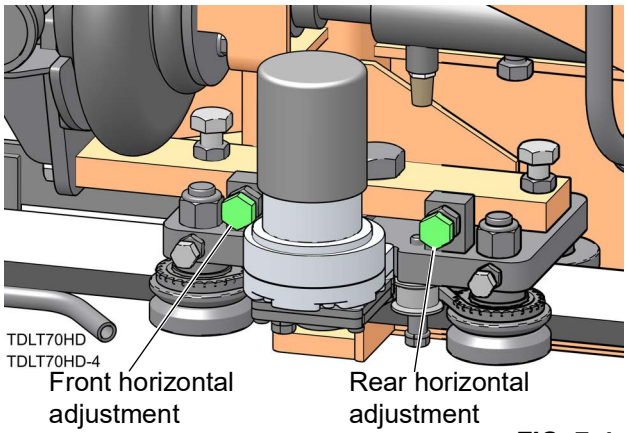


FIG. 7-4

12. Adjust the blade guide arm to 1/2" (15 mm) from **fully open**.

13. Measure the distance from the bottom of the blade guide mounting block to the bed rail. See FIG. 7-5.

This measurement should be 15" (376.5 mm). If the measurements are not the same, adjust the blade guide arm vertically.

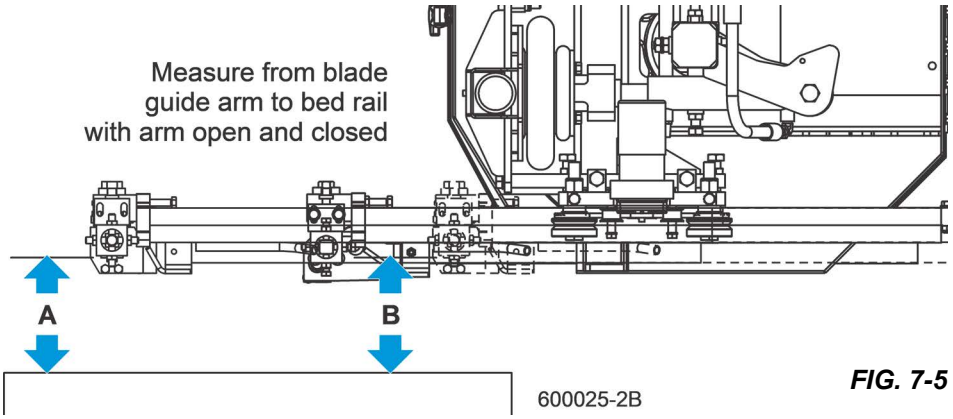


FIG. 7-5

14. Loosen the vertical adjustment bolt jam nuts.

1). To tilt the blade guide arm down, loosen the rear bolt and tighten the front bolt.

2). To tilt the blade guide arm up, loosen the front bolt and tighten the rear bolt.

15. Retighten the jam nuts and recheck the blade guide arm vertical tilt.

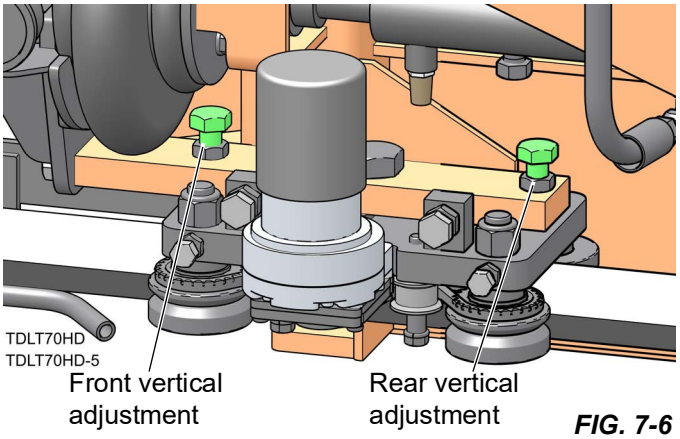


FIG. 7-6

The blade guides should be adjusted properly in the vertical plane. If the blade guides are tilted vertically, the blade will try to travel in the tilted direction.

A Blade Guide Alignment Tool (BGAT) is provided to help you measure the vertical tilt of the blade.

1. Open the adjustable blade guide arm 1/2" (13 mm) from full open.

2. Clamp the alignment tool on the blade.

3. Position the tool close to the outer blade guide roller.

> **NOTE:** Be sure the tool does not rest on a tooth or burr, and is lying flat on the blade.

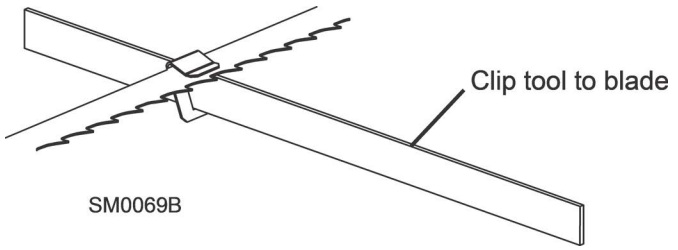


FIG. 7-7

4. Move the carriage so that the **front end** of the tool is positioned above the bed rail.

5. Measure the distance from the bed rail to the bottom edge of the tool.

6. Move the carriage so that the **back end** of the tool is positioned above the bed rail.

7. Measure the distance from the bed rail to the bottom edge of the tool.

If the measurement from the tool to the bed rail is not equal within 1/32" (.75 mm), adjust the vertical tilt of the outer blade guide roller.

8. Loosen one set screw at the side of the blade guide assembly. See FIG. 7-8.

9. Loosen the jam nuts on the top and bottom vertical tilt adjustment screws. See FIG. 7-8.
    1). To tilt the roller up, loosen the bottom screw and tighten top screw.
    2). To tilt the roller down, loosen the top screw and tighten the bottom screw.
    3). Tighten the jam nuts.
    4). Recheck the tilt of the blade.
10. Move the blade guide alignment tool close to the inner blade guide roller assembly and repeat the above steps.
11. Adjust the vertical tilt of the inner blade guide if necessary.
12. Recheck the blade deflection and readjust if necessary.

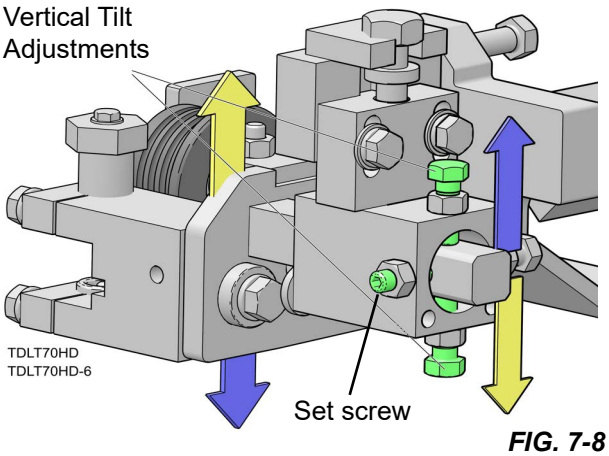


FIG. 7-8

Blade Guide Horizontal Tilt Adjustment

If the blade guides are tilted in the wrong direction horizontally, the back of the blade may contact the flange as the roller is spinning down, causing it to push the blade away from the guide roller.

1. Remove the blade guide alignment tool from the blade and adjust the blade guide arm halfway in.
2. Remove the clip from the blade guide alignment tool.
3. Place the tool against the face of the outer blade guide roller.
4. Measure between the back edge of the blade and the tool at the end closest to the inner blade guide ("B").
5. Measure between the back edge of the blade and the other end of the tool ("A").

The roller should be tilted slightly to the left ('A' 1/8" [3 mm] less than 'B' ±1/8" [3 mm]).

6. Loosen the jam nuts on the horizontal tilt adjustment screws.
    1). To tilt the roller left, loosen the right screw and tighten left screw.
    2). To tilt the roller right, loosen the left screw and tighten the right screw.
    3). Tighten the jam nuts.
    4). Recheck the tilt of the blade.
    5). Repeat the above steps for the inner blade guide roller assembly.

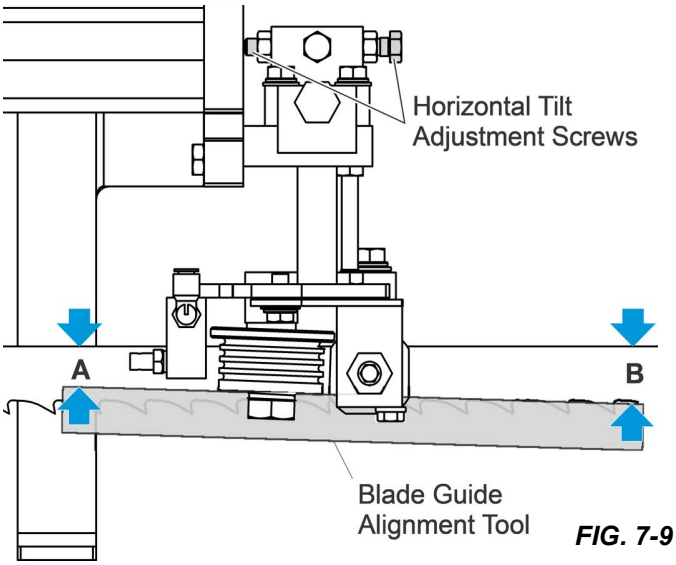


FIG. 7-9

NOTE: Once the blade guides have been adjusted, any cutting variances are most likely caused by the blade.

Blade Guide Flange Spacing

Each blade guide must be adjusted so the roller flange is the correct distance from the back edge of the blade. If the flange is too close to or too far from the blade, the sawmill will not cut accurately.

HINT: When adjusting blade guide spacing, loosen the top set screw and one side set screw only. This will ensure horizontal and vertical tilt adjustments are maintained when the adjustment screws are retightened.

1. Measure the distance between the flange on the **outer blade guide roller** to the back edge of the blade. See FIG. 7-10.

This distance should measure **1/8" (3.0 mm)**.

2. Adjust the roller back or forward if necessary.

    1). Loosen the top and one side screw shown.

    2). Back the stop bolt out of the way if necessary.

    3). Tap the blade guide forward or backward until properly positioned.

    4). Retighten the screws and jam nuts.

3. Measure the distance between the flange on the **inner blade guide roller** to the back edge of the blade.

This distance should measure **1/16" (1.5 mm)**.

4. Adjust the roller back or forward if necessary.

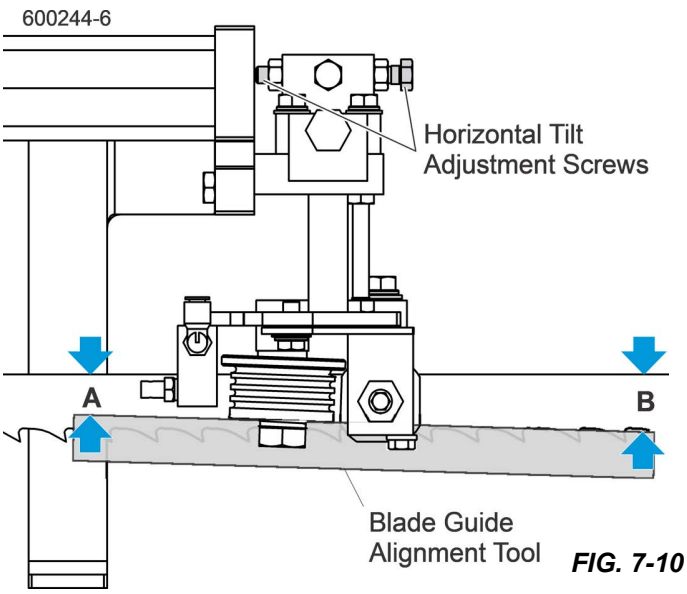


FIG. 7-10

Manual Side Support Alignment

Logs and boards are clamped against the side supports when sawing. The sides supports must be square to the bed to ensure square lumber.

1. Swing a side support down and measure between the face of the support and the main bed tube.

The distance at the top of the side support ('B') should be equal to or no more than 1/32" (0.8 mm) greater than the distance at the base of the side support ('A').

2. Adjust the horizontal tilt of the side support if necessary.

1). Loosen the two adjustment plate mounting bolts.

2). Use a mallet to move the plate until the side support is parallel to the bed tube in the horizontal position.

3). Retighten the mounting bolts.

3. Repeat the horizontal check for the remaining side supports.

4. Adjust as necessary.

5. Place square alignment tubes (Part No. S12831 - 2 required) across the bed rails. See FIG. 7-11.

6. Swing a side support up so that it is vertical.

7. Pull back at the top of the support to eliminate slack as if a log were being clamped against it.

8. Place a square against the face of the side support.

The side support should be square or slightly tilted forward 1/32" (0.8 mm).

9. Adjust the vertical tilt of the side support if necessary.

1). Loosen the side support mounting bolt.

2). Use a 3/8" ratchet to rotate the pin until the side support is square to the bed.

10. Repeat the vertical check for the remaining side supports and adjust as necessary.

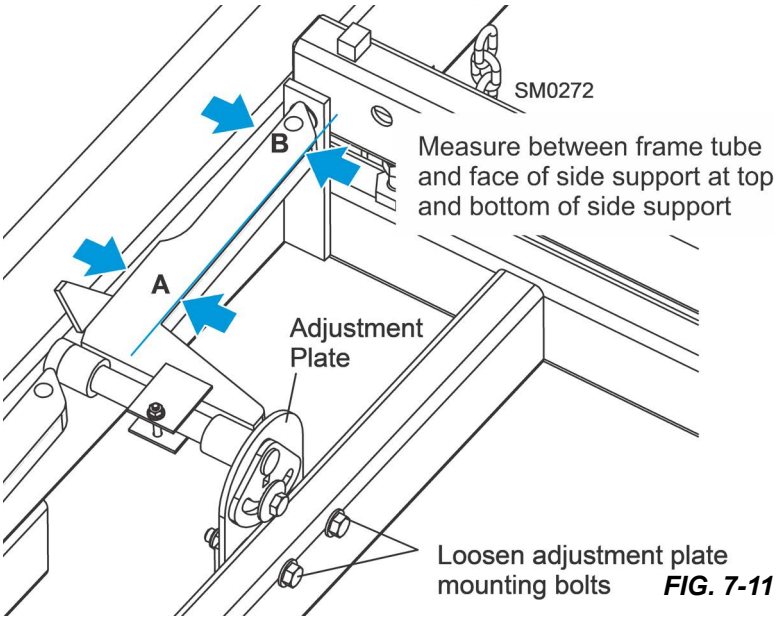


FIG. 7-11

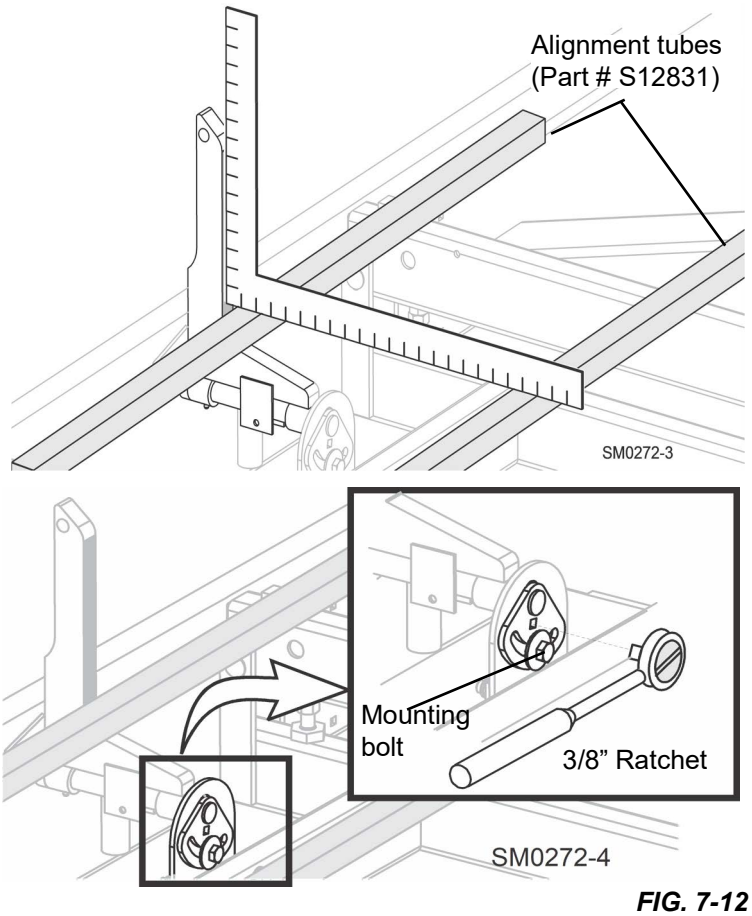


FIG. 7-12

Hydraulic Side Support Alignment

Place the square against the face of the side support. The side support should be square or slightly tilted forward 1/32" (0.8 mm).

1. Adjust the vertical tilt of the side support if necessary.
2. Loosen the top jam nut.
3. Adjust the two lower jam nuts up to tilt the side support back.
4. Adjust the two lower jam nuts down to tilt the side support forward.
5. Retighten the top jam nut and repeat for the other hydraulic side support.

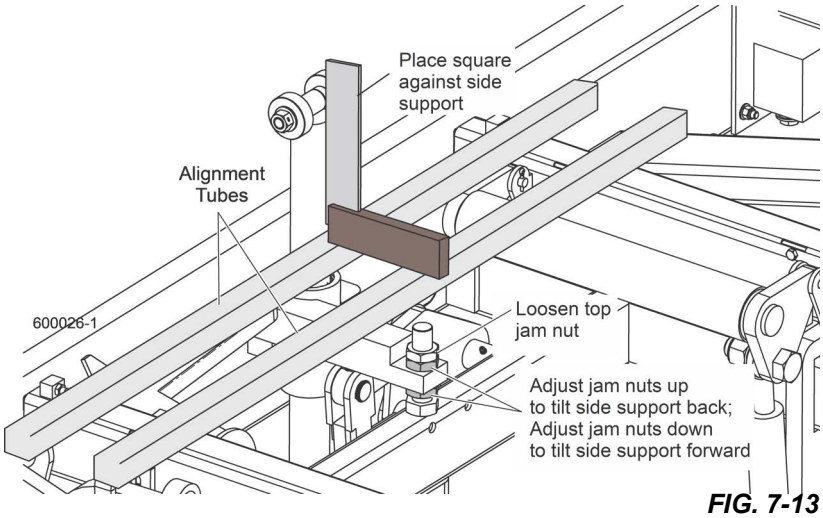


FIG. 7-13

Blade Height Scale Adjustment

After the entire sawmill has been aligned and all adjustments made, check that the blade height scale indicates the true distance from the blade to the bed rails.

1. Move the saw carriage so the blade is positioned directly above one of the bed rails.
2. Measure from the bottom edge on a down-set tooth of the blade to the top of the bed rail, near the inner blade guide assembly.
3. View the blade height scale with eyes level with the indicator.

The scale should indicate the actual distance from the blade to the bed rail.

4. Adjust the indicator if necessary.

    1). Loosen the scale bracket mounting bolts.

    2). Adjust the bracket up or down until the indicator is aligned with the correct mark on the scale (+0 -1/32 [0.8 mm]).

    3). Retighten the bracket mounting bolts.

For example, if the measurement from the down-set tooth of the blade to the bed rail was 14 3/4" (375 mm), make sure the indicator reads 14 3/4" (375 mm) on the scale.

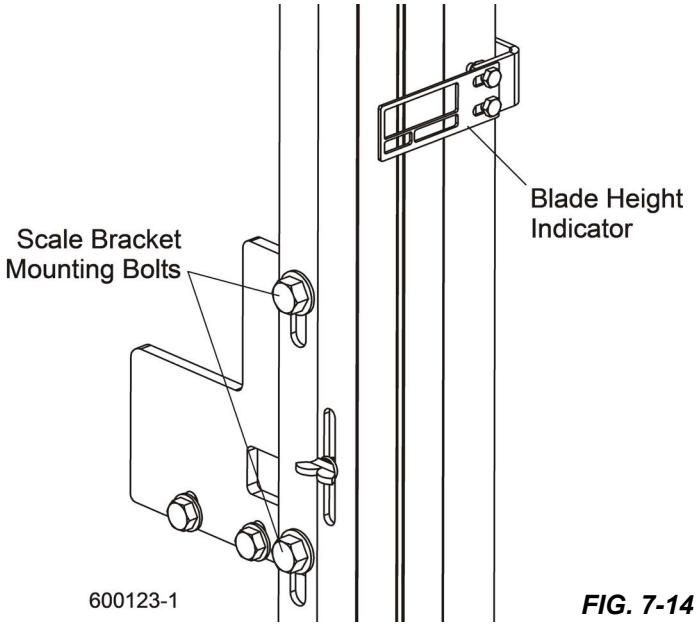


FIG. 7-14

7.2 Complete Alignment Procedure

NOTE: THE PROCEDURES LISTED HERE MUST BE PERFORMED IN THE ORDER THEY APPEAR.

Frame Setup

Before performing the following alignment procedures, setup the mill on firm, level ground.

If your sawmill is stationary, with no trailer axle, shim the feet so the weight of the sawmill is evenly supported.

If your sawmill has a trailer axle and adjustable outriggers, adjust the outriggers as follows:

Adjust the front and third outriggers on the main frame tube down just enough to lift weight from the trailer tire.

All Portable Sawmills: Adjust the two outer outriggers down just so they touch the ground but do not bear weight.

See SECTION 3 for additional setup information.

Blade Installation

1. Remove the blade.
2. Replace the blade wheel belts.

New blade wheel belts are required to perform the Complete Alignment procedure.

3. Blow sawdust off of the blade guide assemblies.
4. Remove sawdust from the blade housings.
5. Remove the blade guide assemblies.

> **NOTE:** The Blade guide will be reinstalled later in the Complete Alignment. To remove the blade guide assemblies and maintain the tilt adjustments, only loosen one side screw and the top screw. Leaving the other side screw and bottom screw in position will insure you will return the rollers to their original tilt adjustment.

6. Adjust the outer blade guide arm in or out until the outer blade guide is approximately 24” from the inner blade guide.
7. Install a new blade and apply the appropriate tension (*See Section 3.4*).
8. Close the blade housing covers and make sure all persons are clear of the saw head.
9. Start the engine (or motor).
10. Engage the blade, rotating the blade until the blade positions itself on the wheels.

WARNING! Do not spin the blade wheels by hand. Spinning the blade wheels by hand may result in serious injury.

11. Disengage the blade.
12. Turn the engine off and remove the key.

Blade Wheel Alignment

The blade wheels should be adjusted so they are level in the vertical and horizontal planes. If the blade wheels are tilted up or down, the blade will want to travel in the tilted direction. If the blade wheels are tilted horizontally, the blade will not track properly on the wheels.

1. Use the blade guide alignment tool to check the vertical alignment of each blade wheel.
2. Attach the tool to the blade near the inner blade guide mount. See FIG. 7-15.

3. Be sure the tool does not rest on a tooth or burr, and is lying flat against the bottom of the blade.
4. Move the saw carriage so the front end of the tool is positioned over the first bed rail.
5. Measure from the bottom of the tool to the top surface of the bed rail.
6. Move the saw carriage so the rear of the tool is positioned over the bed rail. Again, measure from the bottom of the tool to the bed rail.

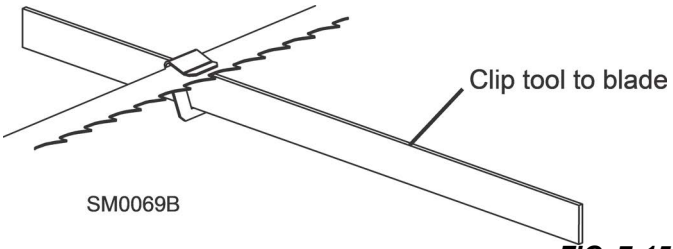


FIG. 7-15

7. If the two measurements differ by more than 1/16" (1.5 mm), adjust the vertical tilt of the drive-side blade wheel.
    1). Use the vertical adjustment screws to adjust the drive-side blade wheel.
    2). To tilt the wheel **down**, loosen the **top** adjustment screw one quarter turn.
    3). Loosen the jam nut on the bottom adjustment screw and tighten the screw.
    4). Tighten the top and bottom jam nuts.
    5). To tilt the wheel **up**, loosen the **bottom** adjustment screw one quarter turn.
    6). Loosen the jam nut on the top adjustment screw and tighten the screw.
    7). Tighten the top and bottom jam nuts.
8. Recheck the vertical tilt of the drive-side blade wheel with the blade guide alignment tool.
9. Readjust the blade wheel as necessary until the front and rear of the tool are the same distance from the bed rail (within 1/16" [1.5 mm]).
10. Remove the tool from the blade and reattach it near the outer blade guide assembly.
11. Measure from the tool to the bed rail at both ends of the tool.

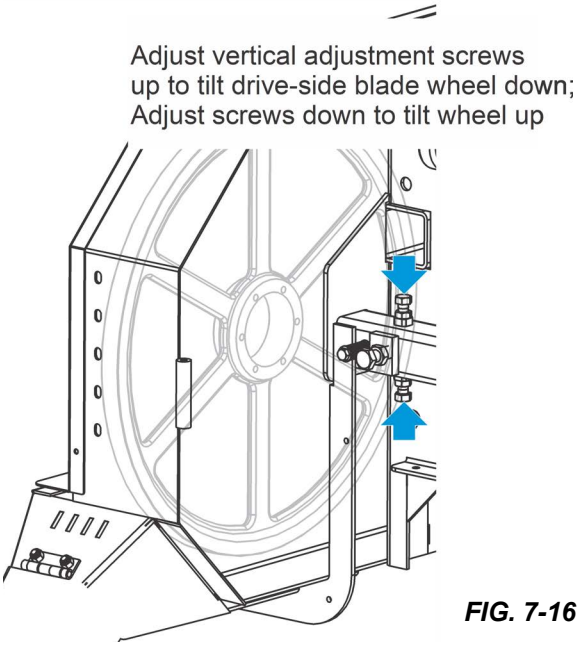


FIG. 7-16

If the measurements at the front and rear ends of the tool differ by more than 1/16" (1.5 mm), adjust the vertical tilt of the idle-side blade wheel.

12. Use the vertical adjustment screws to adjust the idle-side blade wheel.

1). To tilt the wheel up, loosen the bottom adjustment screw one quarter turn.

2). Loosen the jam nut on the top adjustment screw and tighten the screw.

3). Tighten the top and bottom jam nuts.

4). To tilt the wheel down, loosen the top adjustment screw one quarter turn.

5). Loosen the jam nut on the bottom adjustment screw and tighten the screw.

6). Tighten the top and bottom jam nuts.

13. Recheck the vertical tilt of the idle-side blade wheel with the blade guide alignment tool.

14. Readjust the blade wheel as necessary until the front and rear of the tool are the same distance from the bed rail (within 1/16" [1.5 mm]).

15. Check the position of the blade on the idle-side blade wheel.

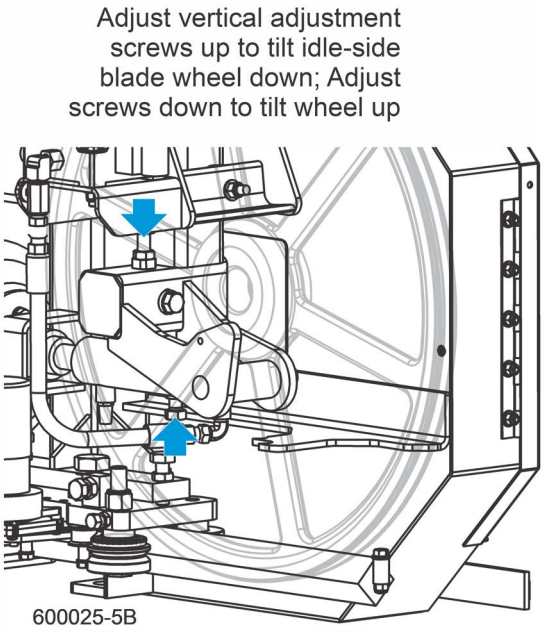


FIG. 7-17

The horizontal tilt of the blade wheel should be adjusted so that the gullet of an 1-1/4" blade is 1/8" (3 mm) out from the front edge of the wheel (±1/16 [1.5 mm]).

The gullet of an 1-1/2" blade should be 3/16" (4.5 mm) out from the front edge of the wheel (±1/16 [1.5 mm]).

Do not let the teeth ride on the wheels.

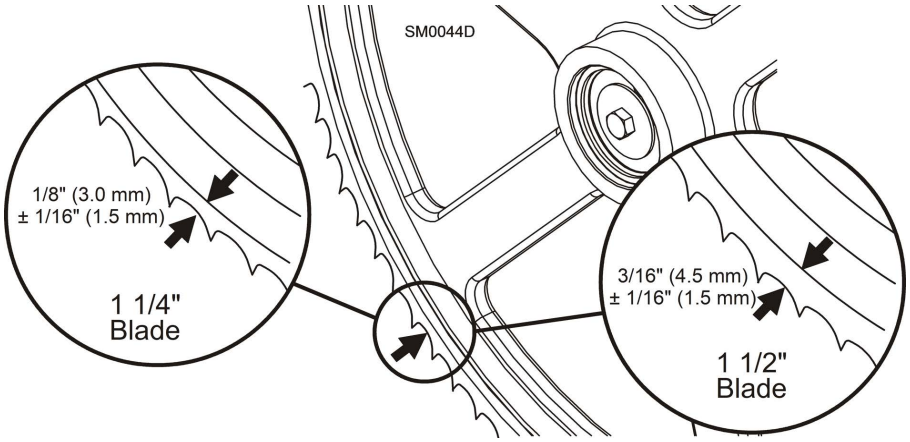


FIG. 7-18

16. Use the cant control adjustment to adjust the idle-side blade wheel. See FIG. 7-19.

If the blade is too far forward on the wheel, turn the cant control counterclockwise.

If it is too far back on the wheel, turn the cant control clockwise.

17. Check the position of the blade on the drive-side blade wheel.

The blade should be positioned on the wheel as described for the idle-side blade wheel.

18. Adjust the drive-side blade wheel if necessary.

19. Use the horizontal adjustment screw to adjust the drive-side blade wheel.

20. Loosen the top vertical screw to allow movement of the drive shaft.

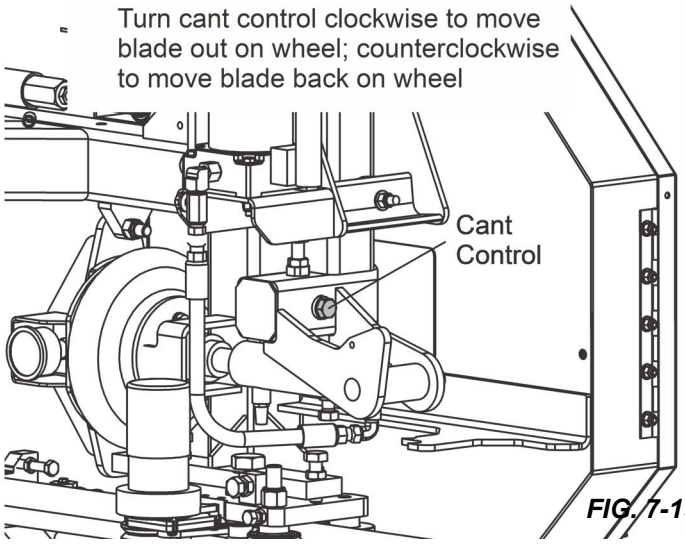


FIG. 7-19

21. To move the blade **back on the wheel**, loosen the jam nut and turn the horizontal adjustment screw clockwise one quarter turn.See FIG. 7-22.

22. To move the blade **out on the wheel**, loosen the jam nut and turn the horizontal adjustment screw counterclockwise one quarter turn.

23. Repeat adjustments in quarter-turn increments until the blade tracks properly on the drive-side blade wheel.

24. Tighten the horizontal adjustment screw jam nut and the top vertical screw.

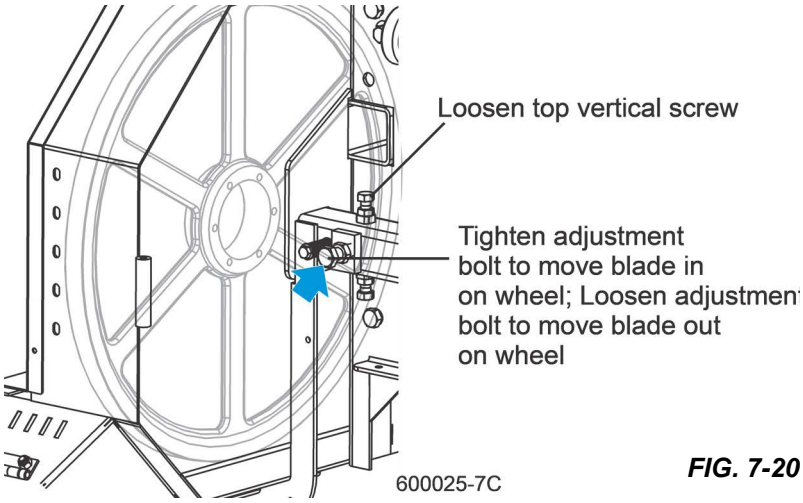


FIG. 7-20

Track Roller Adjustment

Making these adjustments correctly will insure the saw carriage travels smoothly along the track and blade will remain parallel with the bed frame.

LOWER ROLLERS

1. Using the feed controls, move the saw carriage so that the blade is positioned over the front pivot end rail.

2. Check the lower track rollers.

The rear rollers should touch the rail so that you cannot spin them by hand. If the rollers are not adjusted evenly and you can spin one by hand, use the adjustment bolts to adjust the roller.

3. Loosen the four retaining plate bolts. See FIG. 7-21.

4. Back out the stop bolt and jam nut. See FIG. 7-22.

5. Tighten the adjustment bolt to move the track roller(s) toward the rail.

6. When the roller touches the rail so you cannot spin it by hand, retighten the stop bolt.

> **NOTE:** Do not to tighten the rollers so they cause the carriage to bind as it travels down the track.

7. Tighten the jam nut.

8. Replace the retaining plate and tighten the bolts.

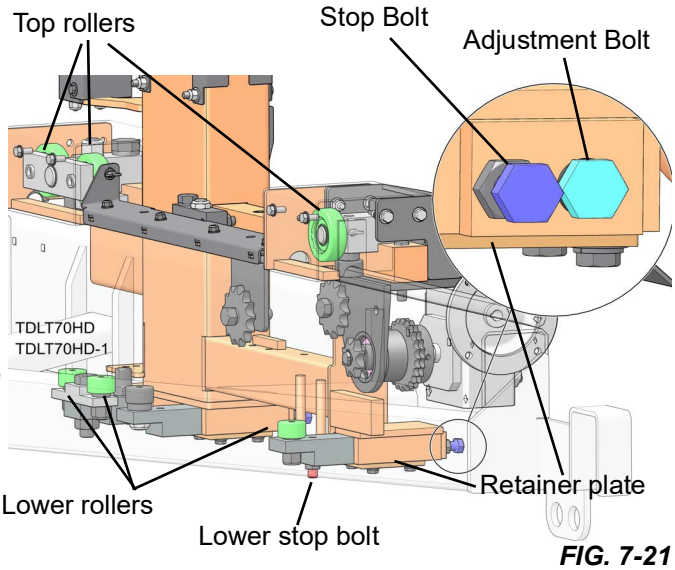


FIG. 7-21

UPPER ROLLERS

1. Remove the cover plates to observe the middle upper and lower track rollers as you move the saw carriage down the track. See FIG. 7-21. .

The middle rollers should touch the rail throughout most of the saw carriage travel.

2. If the rollers do not spin at least half the distance of the track, tighten them as described above.

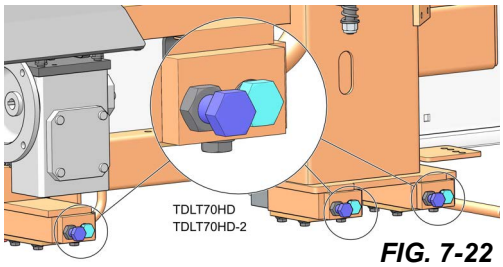


FIG. 7-22

Saw Head Tilt

1. Open the adjustable blade guide arm to within 1/2" (15 mm) of full open.

2. Move the carriage back to the front pivot end rail.

3. Raise the saw head until the bottom of the blade is 17" (400 mm) above the outside of the pivot rail support by actual measurement with a tape or ruler.
4. Move the carriage forward to check the distance to the blade at the inside of the pivot rail support. See FIG. 7-23.

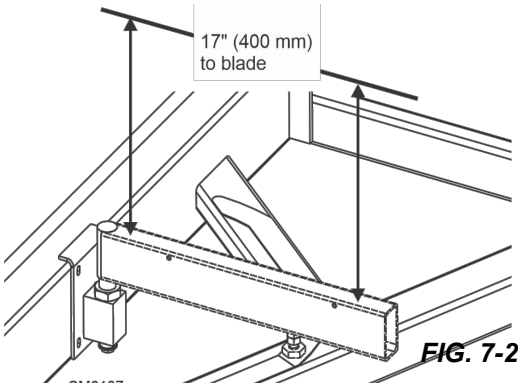


FIG. 7-23

All measurements should be within +/- 1/32" (0.8 mm).

5. To adjust the saw head tilt, use the bolts located at the bottom of the saw head mast/track rollers. See FIG. 7-22.
6. Loosen the three sets of four retaining plate bolts.
    1). To raise the outside of the saw head, back the stop bolts out, then tighten the adjustment bolts.
    2). To lower the outside of the saw head, loosen the adjustment bolts and tighten the stop bolts.
7. Recheck the saw head tilt and readjust the bolts as necessary.
8. Retighten the retaining plate bolts.
9. After the lower track rollers are adjusted properly, adjust lower stop screws. See FIG. 7-21.
10. Tighten each screw until it just touches the rail.
11. Back the screw off 1/2 turn.
12. The gap will be approximately 1/32" (0.8mm).

CAUTION! It is important that the lower stop bolts are properly adjusted to secure the carriage on the track rail. Failure to properly adjust the stop bolts can cause saw head damage, especially during mill transportation.

Bed Rail Adjustment

1. Move the clamp so it is 10" (254mm) from the clamp stop.
2. Adjust the clamp down to its lowest postion.
3. Move the saw head forward until it is positioned over the clamp.
4. Raise the saw head until the blade measures 15 5/16" (385 mm) from the clamp at its lowest position.
5. Adjust the front pivot rail 90° to the main bed tube.
6. Move the saw head to center the blade over the front pivot bed rail.
7. Measure the distance from the top of the pivot rail to the bottom of the blade. Make this measurement at each end of the pivot rail.

The two measurements should be 15" (375 mm).

8. Loosen the locking set screws and turn the inner height adjustment nut to adjust the height of the inner end of the pivot rail.
9. Loosen the jam nut and turn the outer adjustment bolt to adjust the height of the outer end of the pivot rail.
10. Move the saw head so the blade is positioned over the center of the front main bed rail.
11. Measure the distance between the bottom of the blade and the bed rail at each end of the bed rail.

The bed rail should measure 15" (375 mm) from the blade at each end of the rail.

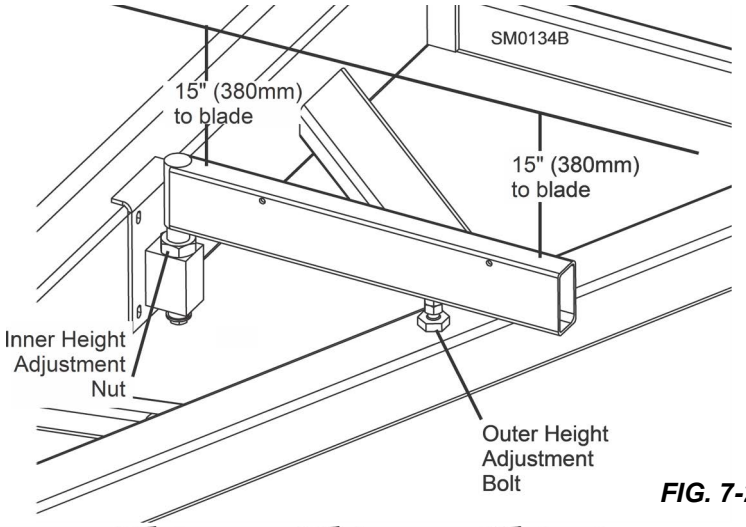


FIG. 7-24

12. Loosen the bed rail clamping bolts and turn the adjustment bolts to move the bed rails to the blade if necessary.
13. Retighten the clamping bolts and adjustment bolt jam nuts.
14. Without adjusting the saw head height, check the three remaining main bed rails and the rear pivot rail.
15. Adjust them so that all measure the same distance from the blade at both ends of the bed rail.

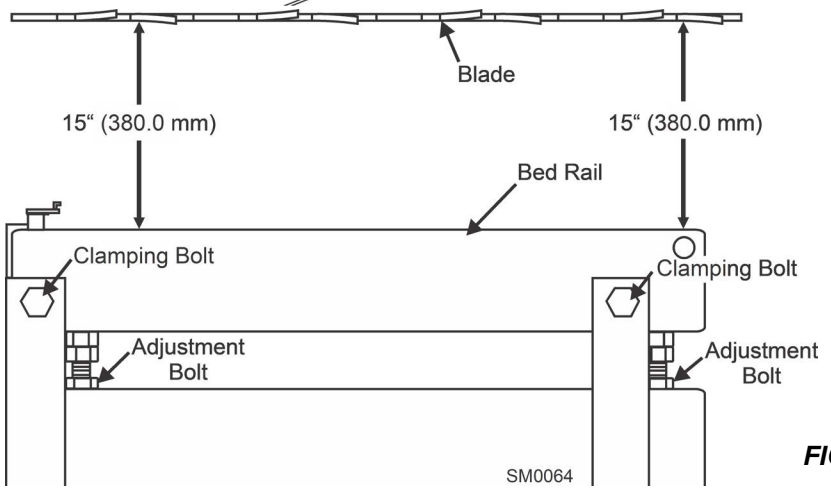


FIG. 7-25

Blade Guide Installation

Each Wood-Mizer sawmill has two blade guide assemblies that help the blade maintain a straight cut. The two blade guide assemblies are positioned on the saw head to guide the blade on each side of the material being cut.

One blade guide assembly is mounted in a stationary position on the drive side of the saw head. This assembly is referred to as the "inner" blade guide assembly.

The other blade guide assembly is mounted on the idle side of the saw head. It is referred to as the "outer" assembly and is adjustable for various widths of materials to be processed.

> **NOTE:** Before installing the blade guide assemblies, remove the blade guide adjusting screws and apply a lubricating oil such as 10W30 or Dexron III to each screw. This will prevent the screws and threaded holes from corroding and make screw adjustments easier.

1. Inspect the guide blocks and repair or replace as necessary.
2. Remove the blade from the sawmill.
3. Loosen the top block clamp bolt and mounting bolt. See FIG. 7-26.
4. Turn the adjustment bolt counterclockwise to raise the top block all the way up.
5. Remove the bottom guide block disc from each blade guide assembly and install the provided alignment bar.
6. Install each blade guide assembly to the mounting blocks and push all the way back.
7. Install, tension and track a new blade.

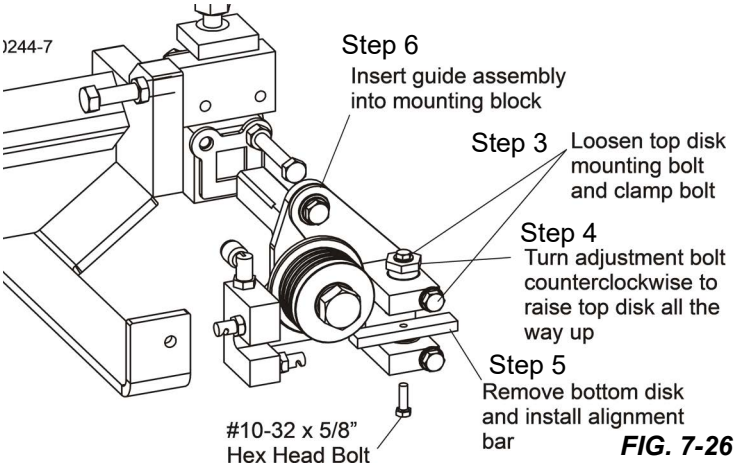


FIG. 7-26

8. Adjust the outer blade guide assembly so the roller flange is 1/8" from the back of the blade.
9. Adjust the inner blade guide assembly so the roller flange is 1/16" from the blade.
10. Tighten the two previously-loosened tilt adjustment screws to secure the blade guide assembly.
11. Turn the top adjustment bolt clockwise to raise the blade guide assembly so the roller does not contact the blade.

    NOTE: Before adjusting the top bolt, unload pressure on the bolt by turning 1/2 turn in the opposite direction it was last adjusted.

12. With the roller flange positioned properly from the back of the blade, adjust the stop bolt so it touches the blade guide bracket.

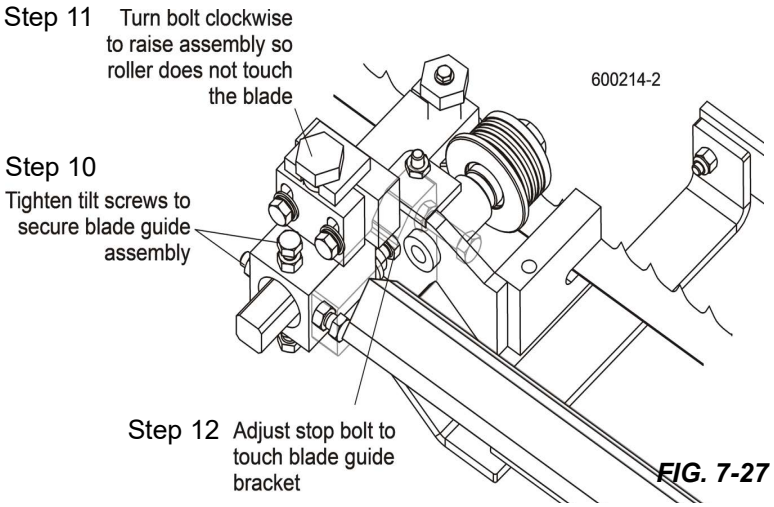


FIG. 7-27

Blade Guide Arm Alignment

Perform *Blade Guide Arm AlignmentBlade Guide Arm AlignmentBlade Guide Arm Alignment* from the Routine Alignment at this point.

Blade Guide Deflection

1. Raise the saw head until the blade is 15" (375 mm) above a bed rail.
2. Measure the actual distance with a tape from the top of the rail to the bottom of the blade.

3. Turn the top adjustment bolt counterclockwise to lower the assembly until the blade guide roller deflects the blade down until the bottom of the blade measures 14 3/4" (370 mm) from the bed rail. See FIG. 7-28.

   NOTE: Before adjusting the top bolt, unload pressure on the bolt by turning 1/2 turn in the opposite direction it was last adjusted.

4. Repeat for the other blade guide.

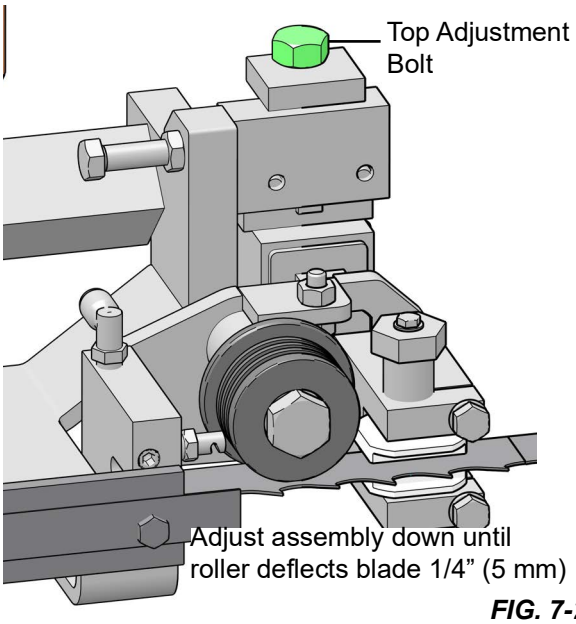


FIG. 7-28

Blade Guide Vertical Tilt Alignment

Perform *Blade Guide Vertical Tilt Alignment* from the Routine Alignment at this point.

Blade Guide Horizontal Tilt Adjustment

Perform *Blade Guide Horizontal Tilt Adjustment* from the Routine Alignment at this point.

Blade Guide Flange Spacing

Perform *Blade Guide Flange Spacing* from the Routine Alignment at this point.

Blade Guide Level

Perform the following adjustments to make sure the blade guide assembly is parallel to the blade.

1. Loosen the alignment bar mounting bolt.
2. Use the bottom block adjustment tool to adjust the alignment bar up so the bar is close to, *but not touching* the bottom of the blade.
3. Retighten the alignment bar mounting bolt
4. Check that the gap from the alignment bar to the blade is the same along entire length of the bar.

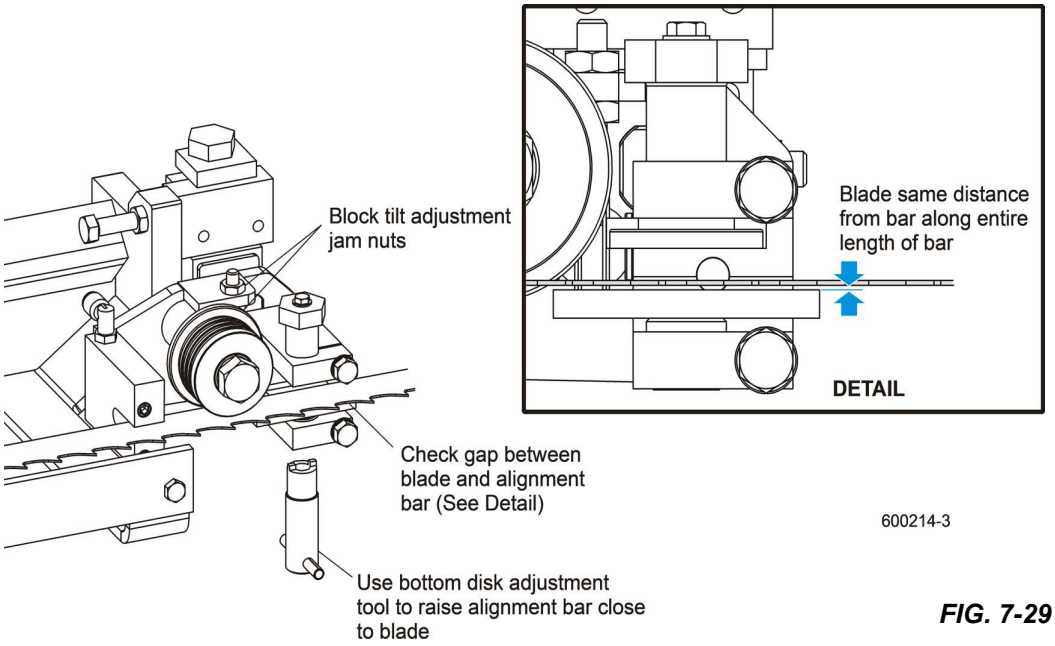


FIG. 7-29

5. Shine a flashlight behind the blade guide assembly to help you see the gap between the bar and the blade.

   1). To adjust, turn the tilt adjustment jam nuts to pivot the block assembly until the alignment bar is parallel to the blade.

   2). Retighten the jam nuts.

   3). Repeat for the second blade guide assembly.

Blade Block Adjustment

1. Remove the blade and remove the alignment bars from the blade guide assemblies.
2. Install new or reconditioned bottom guide blocks to both blade guide assemblies (leave mounting bolts loose).
3. Use the provided bottom block adjustment tool to lower the bottom block all the way down.
4. Install, tension and track the blade.
5. Use the bottom block adjustment tool to raise the bottom block to 0.008" - 0.010" (0.2-0.25mm) from the blade.
6. Use the provided shim to set the distance from the block to the blade.
7. Tighten the bottom block mounting bolt and clamp bolt.

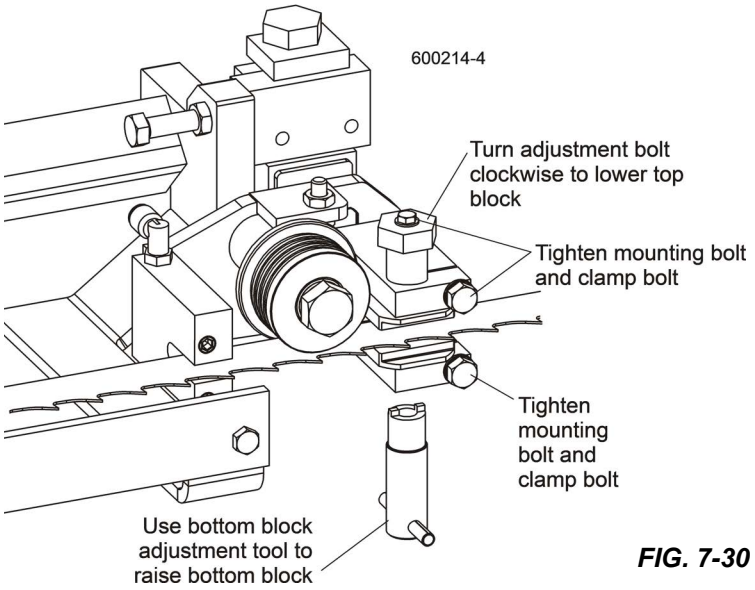


FIG. 7-30

8. Turn the top block adjustment bolt clockwise to lower the top block to 0.008" - 0.010" (0.2-0.25mm) from the blade (using the shim as a guide).
9. Tighten the top block mounting bolt and clamp bolt.
10. After tightening the clamp bolt, recheck the distance from the top block to the blade and readjust if necessary.

Manual Side Support Alignment

Perform *Manual Side Support Alignment* from the Routine Alignment at this point.

Hydraulic Side Support Alignment

Perform *Hydraulic Side Support Alignment* from the Routine Alignment at this point.

Clamp Stop/Stop Bolt Adjustment

1. Once the side supports are aligned, pivot them down to their horizontal position.
2. Tie a string to the stop block at the first bed rail.
3. Stretch the string toward the rear of the frame and tie to the stop block at the last bed rail.
4. Loosen the clamp stop bolts and adjust the clamp stop until it touches the string.
5. Loosen the jam nut and adjust the bolt on the middle-rear bed rail until it touches the string.

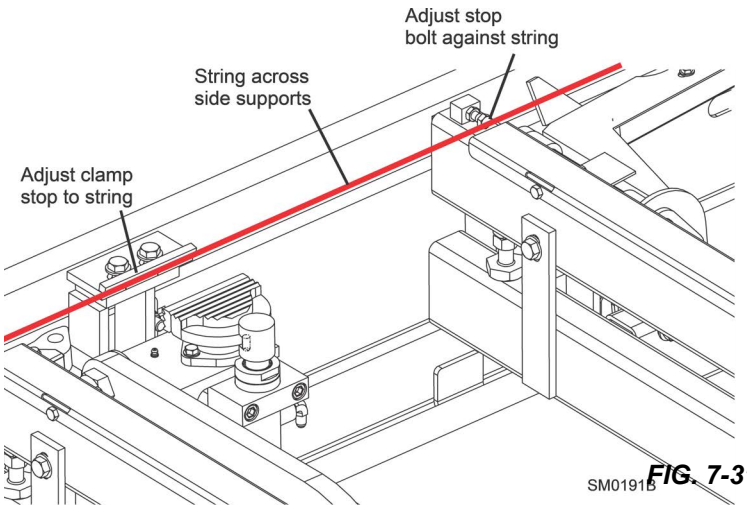


FIG. 7-31

Saw Head Tilt

As the blade enters a wide log or cant, the outside of the saw head will drop down slightly. To compensate for the drop, the saw head is adjusted 1/16" (1.5 mm) higher at the outside.

1. Move the saw carriage so the blade is positioned over a bed rail.
2. Adjust the blade guide arm to 1/2" (13 mm) from full open.

The saw head should still be adjusted so the blade is 14 3/4" (375 mm) above the bed rails. See FIG. 7-28.

3. Measure from the blade to the bed rail near the outer blade guide assembly.

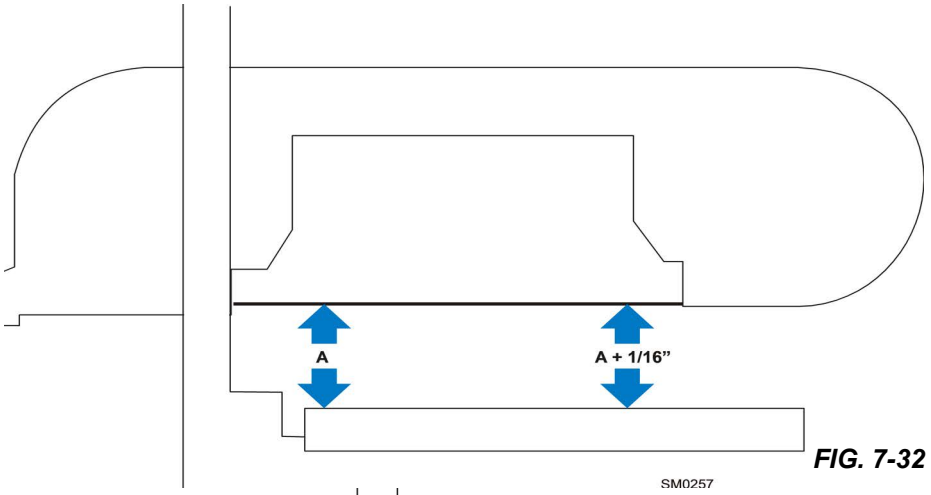


FIG. 7-32

1). To adjust the saw head tilt, use the bolts located at the bottom of the saw head mast.

2). Loosen the three sets of four retaining plate bolts.

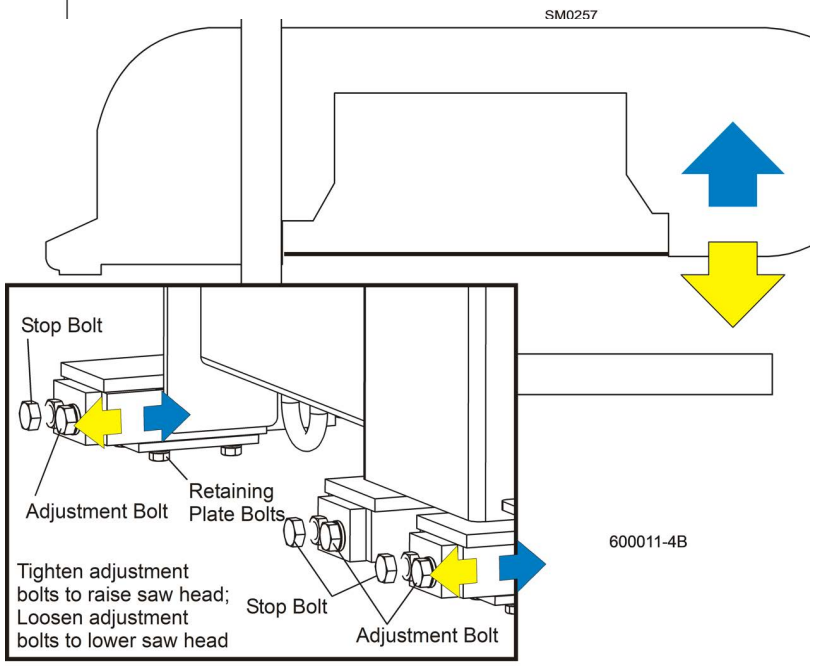
3). To raise the outside of the saw head, back the stop bolts out, then tighten the adjustment bolts.

4). To lower the outside of the saw head, loosen the adjustment bolts and tighten the stop bolts.

5). Recheck the measurement from the blade to the bed rails.

6). Adjust the stop bolts and adjustment bolts until the outside of the saw head is 1/16" higher than the inside.

7). Retighten the retaining plate bolts.



DETAIL OF LOWER TRACK ROLLER ASSEMBLY

FIG. 7-33

Blade Height Scale Adjustment

Perform *Blade Height Scale Adjustment* from the Routine Alignment at this point.

SECTION 8 HYDRAULIC INFORMATION

8.1 Hydraulic Schematic

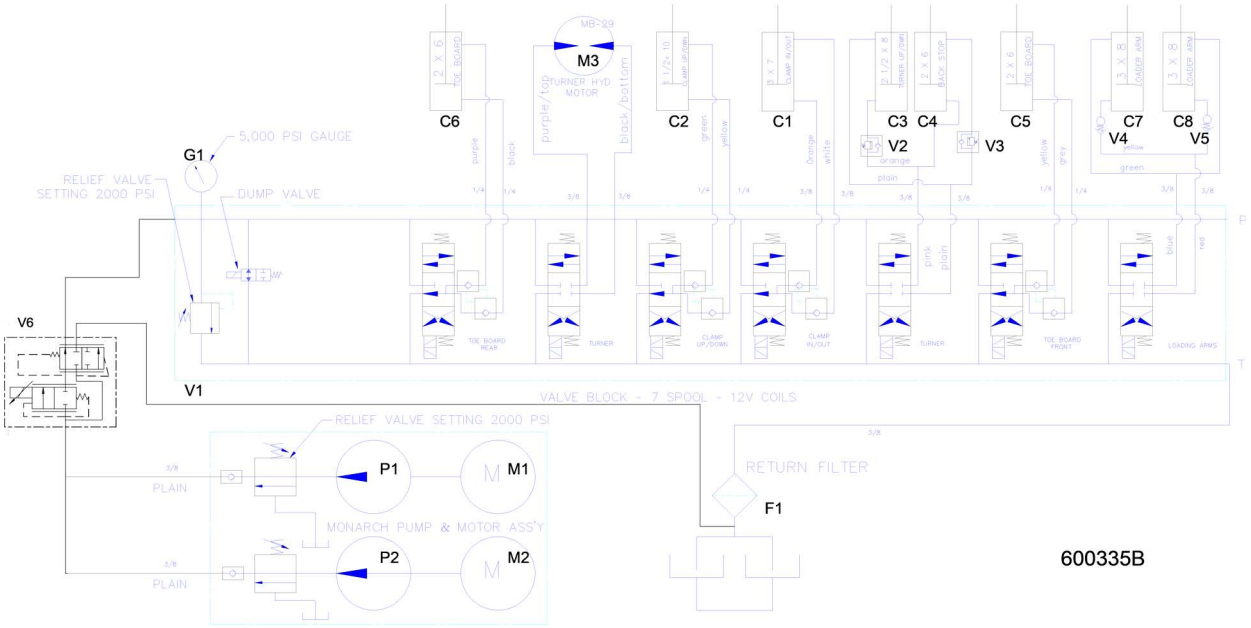


FIG. 8-1 HYDRAULIC SCHEMATIC (DC)

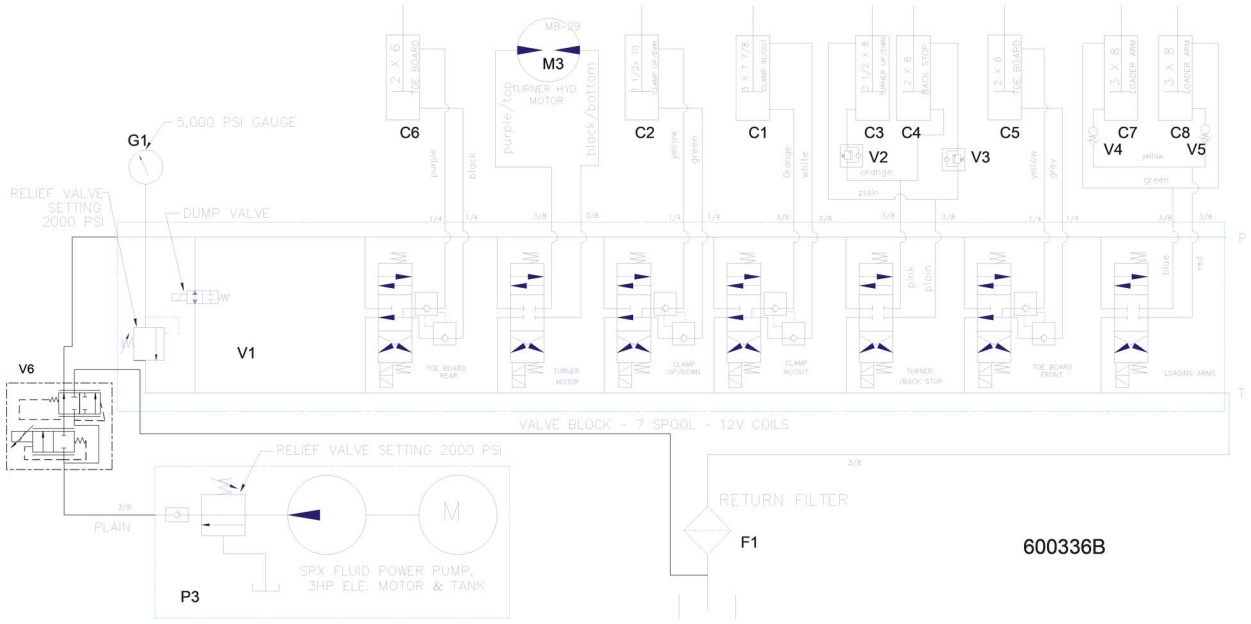
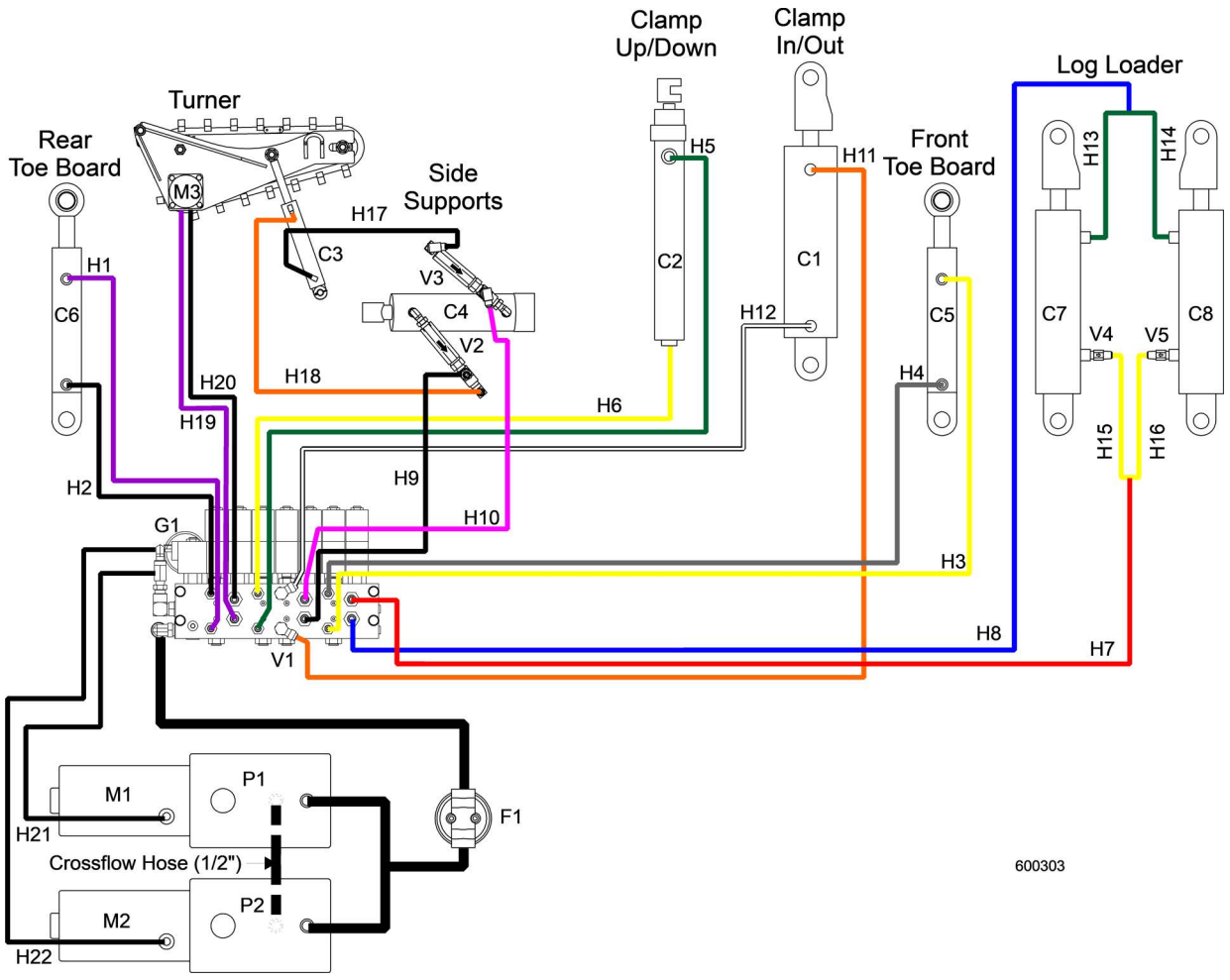


FIG. 8-2 HYDRAULIC SCHEMATIC (AC)

8.2 Hydraulic Layout Diagram



HYDRAULIC LAYOUT DIAGRAM (DC ONLY).

8.3 Hydraulic Components

ID	Mfg. Part No.	Manufacturer	Wood-Mizer Part #	Description
C1	017275	J-D Hydraulic	017275	Hyd. Cylinder, 3" Bore X 7" Stroke
C2	PMC-19410	Prince Mfg.	015050	Hyd. Cylinder, 1 1/2" Bore X 10" Stroke
C3	034267	J-D Hydraulic	034267	Hyd. Cylinder, 2” Bore x 10” Stroke
C4	034736	J-D Hydraulic	034736	Hyd. Cylinder, 2 1/2" Bore X 6" Stroke
C5, C6	014482	J-D Hydraulic	014482	Hyd. Cylinder, 1 1/2” Bore x 6” Stroke
C7, C8	042754	J-D Hydraulic	042754	Hyd. Cylinder, 3" Bore X 8" Stroke
F1	S28	Hyd. Filter Supply	P20301	Filter, Hydraulic Fluid Cartridge
G1	CF-1P-210A	Pressure Devices Inc.	P10052	Gauge, 5000 PSI Hydraulic
P1, P2	M300-0230	Monarch Hyd.	P12701	Hydraulic Pump, With Motor (DC)
V1	HF37165-06	Scott Industrial Sys	025688	Valve, 7-Section Hydraulic Expndbl.
V2, V3	49005-700	Vonberg	015484	Sequence Valve, 700 psi
V4, V5	28001-503-6.5	Vonberg	038734	Valve, Hydraulic 6.5GPM Velocity Fuse
V6	PV70-30A-6T-N-12DG	Scott Industrial Sys	025840	Valve, 12VDC Proportional Flow Control
M1, M2	08058-I	Monarch Hyd.	052807	Motor, Iksra Hydraulic Pump (DC)
M3	TG0475US080AABP	Parker	007331	Motor, Hydraulic Log Turner Chain

TABLE 8-1

8.4 Hydraulic Hoses

ID	Color Code	LENGTH "A"	Application	HOSE PART #
H1	Purple	81”	1/4” Rear Toe Board Top	048306
H2	Black	87”	1/4” Rear Toe Board Base	048307
H3	Yellow	52”	1/4” Front Toe Board Top	048308
H4	Gray	56”	1/4” Front Toe Board Base	048309
H5	Green	43”	1/4” Clamp Up/Down Top	048310
H6	Yellow	32”	1/4” Clamp Up/Down Base	048311
H7	Red	22”	3/8” Loading Arm Base	048312
H8	Blue	22”	3/8” Loading Arm Top	048312
H9	Plain	16”	3/8” Side Support Base	048313
H10	Pink	15”	3/8” Side Support Top	048314
H11	Orange	20”	3/8” Clamp In/Out Base	048315
H12	White	23”	3/8” Clamp In/Out Top	048316
H13	Green	74”	3/8” Loading Arm Branch Top	048317
H14	Green	34”	3/8” Loading Arm Branch Top	048318
H15	Yellow	77”	3/8” Loading Arm Branch Base	048298
H16	Yellow	34”	3/8” Loading Arm Branch Base	048318
H17	Plain	73”	3/8” Log Turner Base	048319
H18	Orange	65”	3/8” Log Turner Top	048320
H19	Purple	61”	3/8” Log Turner Motor (Nearest Frame)	006725
H20	Black	65”	3/8” Log Turner Motor (Furthest from Frame)	006726
H21	Plain	27”	1/4” Pump to Valve	036293
H22	Plain	38”	1/4” Pump to Valve	036294

INDEX

T

U

W